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TRANSACTIONS

OF THE

American Association

OF

Obstetricians and Gynecologists

VOL. XX

FOR THE YEAR 1907

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1908

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NOTE

The Association does not hold itself responsible for the views enunciated in the papers and discussions published in this volume.

WILLIAM WARREN POTTER, *Secretary*,
238 DELAWARE AVENUE, BUFFALO.

[Minutes and discussions stenographically reported by WILLIAM WHITFORD, Chicago, Ill.]

LIST OF ILLUSTRATIONS

PAGE

Formation of an Artificial Vagina by Intestinal Transplantation. (JAMES F. BALDWIN) 100, 101

Lithopedion or Lithokelyphopedion, Thirty-two Years Old, Successfully Removed from a Woman Sixty-seven Years and Seven Months of Age. (HERMAN E. HAYD) 125, 126

Enucleation of Large Extramural Intraligamentary Uterine Myomata, without Mutilating Any Pelvic Organ. Two Cases and Remarks. (HENRY HOWITT) 192, 193, 194, 195, 196, 197

Deciduoma Malignum. (MILES F. PORTER) . . . 273, 274, 275, 276

An Unusually Large Dermoid Tumor of the Ovary. (WILLIAM H. HUMISTON) 280

Nephrocolopexy. (HOWARD W. LONGYEAR) 295, 296, 297

A Case of Deciduoma Malignum. (AP MORGAN VANCE) 302, 303, 304, 305

Myofibroma Complicating Pregnancy; Hysterectomy. (EDWARD J. ILL) 307

James Crear Dunn, M.D. (WILLIAM WARREN POTTER) . . . 314

CONTENTS.

	PAGE
Constitution	ix
By-Laws	xii
Officers for 1907-1908	xvii
List of Honorary Fellows	xix
List of Corresponding Fellows	xxiii
List of Ordinary Fellows	xxv
Minutes of the Proceedings of the Twentieth Annual Meeting	xlv
The President's Address: Back to an Old Idea, for It Introduces a New Principle in Surgery. By ROBERT T. MORRIS, M.D.	1
Observations and Reflections on Gallstone Diseases. By HUGO O. PANTZER, M.D.	15
Tuberculosis of the Kidney, with Report of Cases. By RUFUS B. HALL, M.D.	27
The Toxemia of Pregnancy as Observed by the Gynecologist. By RALEIGH R. HUGGINS, M.D.	41
Present Treatment of Puerperal Sapremia and Puerperal Sepsis. By JOHN EGERTON CANNADAY, M.D.	61
End Results in Operations for Prolapsus Uteri. By JOHN W. KEEFE, M.D.	73
Phlebitis Following Abdominal Operations. By ORANGE G. PFAFF, M.D.	90
Formation of an Artificial Vagina by Intestinal Transplantation. By JAMES F. BALDWIN, M.D.	98
Some of the Causes of Painful Menstruation in Young Unmarried Women. By W. A. B. SELLMAN, M.D.	104
The Menstrual Function; Its Influence Upon Chronic Inflammatory Conditions of the Appendix. By FRANCIS REDER, M.D.	114
Lithopedion or Lithokelyphopedion, Thirty-two Years Old, Successfully Removed from a Woman Sixty-seven Years and Seven Months of Age. By HERMAN E. HAYD, M.D.	124
Ophthalmia Neonatorum; a Pathologic Anachronism. By F. PARK LEWIS, M.D.	134
Premature Interruption of Pregnancy. By JOHN A. LYONS, M.D.	146
Typhoid Perforations. By JOSEPH PRICE, M.D.	159
When Shall We Perform Myomectomy and When Hysterectomy in Uterine Fibromyomata? By JAMES W. WEST, M.D.	177
Enucleation of Large Extramural Intraligamentary Uterine Myomata, without Mutilating Any Pelvic Organ; Two Cases and Remarks. By HENRY HOWITT, M.D.	190
A Case of Subperitoneo-Pelvic Fibroid Complicating a Four Months' Pregnancy—Hysterectomy—Enucleation of Fibroid—Secondary Hemorrhage One Week After the Operation—Pelvic Abscess—Rectovaginal Fistula—Recovery. By E. GUSTAV ZINKE, M.D.	200

Temporary Uretero-vaginal Fistula After Panhysterectomy for Fibroid of the Uterus. By ERNST JONAS, M.D. 208
Fibroid Operations During Pregnancy. By J. H. CARSTENS, M.D. . 213
Intraabdominal Torsion of the Omentum without Hernia. By R. E. SKEEL, M.D. 227
Nymphomania as a Cause of Excessive Venery. By CARLTON C. FREDERICK, M.D. 237
The Conservative Medical Treatment of Salpingitis. By EDWARD J. ILL, M.D. 247
Consistency in Aseptic Surgical Technic. By JAMES E. SADLIER, M.D. 265
Deciduoma Malignum. By MILES F. PORTER, M.D. 272
An Unusually Large Dermoid Tumor of the Ovary. By WILLIAM H. HUMISTON, M.D. 279
Large Echinococcus Cyst of the Liver; Operation and Recovery. By HERMAN E. HAYD, M.D. 288
Nephrocolopexy. By HOWARD W. LONGYEAR, M.D. 294
A Case of Deciduoma Malignum. By AP MORGAN VANCE, M.D. . 301
Myofibroma Complicating Pregnancy; Hysterectomy. By EDWARD J. ILL, M.D. 306
The Relation of the Weight of the Placenta to the Weight of the Newborn Child. By W. P. MANTON, M.D. 309
In Memoriam—James Crear Dunn, M.D. By WILLIAM WARREN POTTER, M.D. 313

CONSTITUTION AND BY-LAWS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

TOGETHER WITH

MINUTES OF THE TWENTIETH ANNUAL MEETING

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AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

CONSTITUTION.

I. The name of this Association shall be THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

II. Its object shall be the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology.

MEMBERS.

III. The members of this Association shall consist of Ordinary Fellows, Honorary Fellows, and Corresponding Fellows.

The Ordinary Fellows shall not exceed one hundred and fifty in number.

The Honorary Fellows shall not exceed ten American and twenty-five foreign.

Candidates shall be proposed to the Executive Council at least one month before the first day of meeting, by two Fellows, and shall be balloted for at the annual meeting, a list of names, having been sent to every Fellow with the notification of the meeting.

A two-thirds vote in the affirmative of all the members present shall be necessary to elect—fifteen Fellows at least being in attendance.

All candidates for active fellowship shall submit to the Executive Council, at least one month before the annual meeting, an original paper relating to Abdominal Surgery, Obstetrics, or Gynecology.

HONORARY FELLOWS.

IV. The power of nominating Honorary Fellows shall be vested in the Executive Council.

Their election shall take place in the same manner as that of Ordinary Fellows.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay any fee.

CORRESPONDING FELLOWS.

V. The Corresponding Fellows shall be recommended by the Executive Council and elected by the Association.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, and shall be entitled to a copy of the annual TRANSACTIONS.

They shall pay an annual fee of five dollars.

OFFICERS.

VI. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and six Executive Councillors.

The nomination of all officers shall be made in open session at the business meeting, and the election shall be by ballot.

The first five officers shall enter upon their duties immediately before the adjournment of the meeting at which they shall be elected, and shall hold office for one year.

["At the election next succeeding the adoption of these laws, the full number of Executive Councillors shall be elected; two for a term of three years, two for a term of two years, and two for a term of one year.

"At every subsequent election two Councillors shall be elected for a term of three years, and shall continue in office until their successors shall have been elected and shall have qualified."][1]

Any vacancy occurring during the recess may be filled temporarily by the Executive Council.

ANNUAL MEETINGS.

VIII. The time and place of holding the annual meeting shall be determined by the Association or may be committed to the Executive Council each time before adjournment.

It shall continue for three days, unless otherwise ordered by vote of the Association.

[1]Amendment adopted September 21, 1898.

AMENDMENTS.

VIII. This Constitution may be amended by a two-thirds vote of all the Fellows present at the annual meeting: *provided*, that notice of the proposed amendment shall have been given in writing at the annual meeting next preceding: and *provided*, *further*, that such notice shall have been printed in the notification of the meeting at which the vote is to be taken.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

BY-LAWS.

THE PRESIDING OFFICER.

I. The President, or in his absence, one of the Vice-Presidents, shall preside at all meetings, and perform such other duties as ordinarily pertain to the Chair.

The presiding officer shall be *ex-officio* chairman of the Executive Council, but shall vote therein only in case of a tie.

SECRETARY.

II. The Secretary shall attend and keep a record of all meetings of the Association and of the Executive Council, of which latter he shall be *ex-officio* clerk, and shall be entitled to vote therein.

He shall collect all moneys due from the members, and shall pay the same over to the Treasurer, taking his receipt therefor.

He shall supervise and conduct all correspondence of the Association; he shall superintend the publication of the TRANSACTIONS under the direction of the Executive Council, and shall perform all the ordinary duties of his office.

He shall be the custodian of the seal, books, and records of the Association.

TREASURER.

III. The Treasurer shall receive all moneys from the Secretary, pay all bills, and render an account thereof at the annual meetings, when an Auditing Committee shall be appointed to examine his accounts and vouchers.

EXECUTIVE COUNCIL.

IV. The Executive Council shall meet as often as the interests of the Association may require. The President, or any three members may call a meeting, and a majority shall constitute a quorum.

It shall have the management of the affairs of the Association, subject to the action of the house at its annual meetings.

It shall have control of the publications of the Association, with full power to accept or reject papers or discussions.

It shall have control of the arrangements for the annual meetings, and shall determine the order of the reading of papers.

It shall constitute a court of inquiry for the investigation of all charges against members for offences involving law or honor; and it shall have the sole power of moving the expulsion of any Fellow.

ORDER OF BUSINESS.

V. The Order of Business at the annual meetings of the Association shall be as follows:

1. General meeting at 10 o'clock A.M.
   a. Reports of Committees on Scientific Questions.
   b. Reading of Papers and Discussion of the same.
2. One business Meeting shall be held at half-past nine o'clock A.M. on the first day of the session, and another on the evening of the second day (unless otherwise ordered by vote), at which only the Fellows of the Association shall be present. At these meetings the Secretary's record shall be read; the Treasurer's Accounts submitted; the reports of Committees on other than scientific subjects offered; and all Miscellaneous Business transacted.

PAPERS.

VI. The titles of all papers to be read at any annual meeting shall be furnished to the Secretary *not later* than one month before the first day of the meeting.

No paper shall be read before the Association that has already been published, or that has been read before any other body.

Not more than thirty minutes shall be occupied in reading any paper before the Association.

Abstracts of all papers read should be furnished to the Secretary at the meeting.

All papers read before the Association shall become its sole property if accepted for publication; and the Executive Council may decline to publish any paper not handed to the Secretary *complete* before the final adjournment of the annual meeting.

QUORUM.

VII. The Fellows present shall constitute a quorum for all business, excepting the admission of new Fellows or acting upon amendments to the Constitution, when not less than fifteen Fellows must be present.

DECORUM.

VIII. No remarks reflecting upon the personal or professional character of any Fellow shall be in order at any meeting, except when introduced by the Executive Council.

FINANCE.

IX. Each Fellow, on admission, shall pay an initiation fee of twenty-five dollars, which shall include his dues for the first year.

Every Fellow shall pay, *in advance* (*i.e.*, at the beginning of each fiscal year) the sum of twenty dollars annually thereafter.

[A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.]

Any Fellow neglecting to pay his annual dues for two years may forfeit his membership, upon vote of the Executive Council.

The Secretary shall receive, annually, a draft from the President, drawn on the Treasurer, for a sum, to be fixed by the Executive Council, for the services he shall have rendered the Association during the year.

A contingent fund of one hundred dollars shall be placed annually at the disposal of the Secretary for current expenses, to be disbursed by him, and for which he shall present proper vouchers.

ATTENDANCE.

X. Any Fellow who shall neither attend nor present a paper for three consecutive years, unless he offer a satisfactory excuse, may be dropped from fellowship, upon vote of the Executive Council.

RULES.

XI. *Robert's Rules of Order* shall be accepted as a parliamentary guide in the deliberations of the Association.

AMENDMENTS.

XII. These By-Laws may be amended by a two-thirds vote of the Fellows present at any meeting; *provided*, previous notice in writing shall have been given at the annual meeting next preceding the one at which the vote is to be taken.

OFFICERS FOR 1907-1908

PRESIDENT.

E. GUSTAV ZINKE, Cincinnati.

VICE-PRESIDENTS.

JOHN WILLIAM KEEFE, Providence.

WILLIAM A. B. SELLMAN, Baltimore.

SECRETARY.

WILLIAM WARREN POTTER, Buffalo.

TREASURER.

XAVIER OSWALD WERDER, Pittsburg.

EXECUTIVE COUNCIL.

JOHN YOUNG BROWN, Saint Louis.

HOWARD WILLIAMS LONGYEAR, Detroit.

HUGO OTTO PANTZER, Indianapolis.

RUFUS BARTLETT HALL, Cincinnati.

ROBERT TUTTLE MORRIS, New York.

WILLIAM HENRY HUMISTON, Cleveland.

HONORARY FELLOWS

* Deceased.

1899.—BALLANTYNE, JOHN WILLIAM, M.D., F.R.C.P.E., F.R.S. Edin. Lecturer on Midwifery and Gynecology, School of the Royal College, Edinburgh; Examiner in Midwifery and Gynecology in the University of Edinburgh; Vice-President of the Edinburgh Obstetrical Society; Honorary Fellow of the Glasgow Obstetrical and Gynecological Society. 24 Melville Street, Edinburgh, Scotland.

1889.—BANTOCK, GEORGE GRANVILLE, M.D., F.R.C.S. Ed. Surgeon to the Samaritan Free Hospital. 36 Gloucester Place, Portman Square, W.; Dunrobin, Payne's Lane, Pinner, Middlesex, London, W., England.

1889.—BARBOUR, SIR A. H. FREELAND, M.A., B.S.C., M.D., F.R.C.P. Ed., F.R.S. Ed. Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School; Assistant Physician to the Royal Maternity Hospital; Assistant Physician for Diseases of Women to the Royal Infirmary; Physician to the Women's Dispensary; Fellow of the Edinburgh and London Obstetrical Societies, and of the British Gynecological Society; Corresponding Fellow of the Royal Academy of Medicine, Turin. 4 Charlotte Square, Edinburgh, Scotland.

1892.—*BOISLINIERE, L. Ch., A.B., M.D., LL.D., Saint Louis, Mo. 1896.

1890.—CHAMPIONNIÈRE, JUST. LUCAS, M.D. 3 Avenue Montaigne, Paris, France.

1889.—*CHARPENTIER, LOUIS ARTHUR ALPHONSE, M.D. Paris, France. 1899.

1888.—CORDES, AUGUST ELISÉE, M.D. Member of the Royal College of Physicians, London; Fellow of the Obstetrical Society of London and of the British Gynecological Society; Corresponding National Member of the Obstetrical and Gynecological Society of Paris; Honorary Fellow of the Detroit Gynecological

Society; late "Chirurgien-adjoint" of the Obstetrical and Gynecological Clinic at the Maternity at Geneva; Consulting Accoucheur of the Miséricorde Hospital, etc.; Perpetual member of the Société Obstétricale de France, Paris, France. 31 Chemin du Square, Geneva, Switzerland.

1890.—*CORSON, HIRAM, M.D., Plymouth Meeting, Pa. 1896.

1889.—CROOM, SIR J. HALLIDAY, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary, Edinburgh; Physician to the Royal Maternity Hospital; Lecturer on Midwifery and the Diseases of Women at the School of Medicine; Consulting Physician for Diseases of Women, Western Dispensary. 25 Charlotte Square, Edinburgh, Scotland.

1889.—*DUNLAP, ALEXANDER, A.M., M.D., Springfield, O. 1894.

1888.—*EDIS, ARTHUR WELLESLEY, M.D. Lond. F.R.C.S., M.R.S.C.S. London, England. 1893.

1889.—*EKLUND, ABRAHAM FREDRIK, M.D. Stockholm, Sweden. 1898.

1891.—FERNANDEZ, JUAN SANTOS, M.D. Prado, No. 105, Havana, Cuba.

1891.—*FISHER, GEORGE JACKSON, A.M., M.D. Sing Sing, N. Y. 1893.

1889.—FREUND, WILLIAM ALEXANDER, M.D. Emeritus Professor and Director of the Clinic for Diseases of Women in the University of Strassburg. Kleiststrasse 9, Berlin W., Germany.

1896.—*GASTON, JAMES MCFADDEN, A.M., M.D. Atlanta, Ga. 1903.

1892.—*GREEN, TRAILL, M.D., LL.D. Easton, Pa. 1897.

1894.—JACOBS, CHARLES, M.D. Professor of the Faculty of Medicine of Brussels; Secretary-General of the Permanent Committee of the Periodic International Congress of Gynecology and Obstetrics; Honorary President of the Belgian Society of Gynecology and Obstetrics; Honorary Fellow of the Gynecological Societies of New York and Chicago; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Gynecological Society of Paris; Surgeon to the Brussels Polyclinic. 53 Boulevard de Waterloo, Brussels, Belgium.

1889.—*KEITH, THOMAS, M.D. London, England. 1896.

1889.—LEOPOLD, G., M.D. Professor in the Royal Clinic for Diseases of Women. 90 Pfotenhauerstrasse, Dresden, Germany.

1905.—MCGRAW, THEODORE A., M.D. 73 Cass Street, Detroit, Mich.

1894.—*MACLEAN, DONALD, M.D. Detroit, Mich. 1903.

1890.—MARTIN, AUGUST, M.D., Emeritus Professor of Gynecology in the University of Greifswald. Keithstrasse 14, Berlin W. 62, Germany.

1895.—*MASTIN, CLAUDIUS HENRY, M.D., LL.D. Mobile, Ala. 1898.

1897.—MATHEWS, JOSEPH MCDOWELL, M.D. Professor of Diseases of the Rectum and Clinical Surgery, Hospital College of Medicine; President of the Kentucky State Board of Health; First Vice-President American Medical Association, 1898; President, 1899. 411 The Masonic, Louisville, Kentucky.

1891.—*MOSES, GRATZ ASHE, M.D. Saint Louis, Mo. 1901.

1905.—*MYERS, WILLIAM HERSCHEL, M.D. (*Founder*. Transferred from Ordinary List.) Fort Wayne, Ind. 1907.

1889.—NICOLAYSEN, JULIUS, M.D. Professor of Surgery in the University of Norway. Christiania, Norway.

1891.—PIETRANERA, E., M.D. Professor of Obstetrics in the Medical Department of the National University; Director of the Maternity Branch of the Clinical Hospital. 2711 Calle Rio Adaria, Buenos Ayres, Argentine Republic, S. A.

1889.—*SAENGER, MAX, M.D. Prague. 1903.

1890.—SAVAGE, THOMAS, M.D., F.R.C.S. Eng. Surgeon to the Birmingham Hospital for Women. 133 Edmund Street, Birmingham, England.

1889.—SCHULTZE, BERNHARD SIGMUND, M.D. Professor of Gynecology; Director of the Lying-in Institute and of the Gynecological Clinic. 2 Sellierstrasse, Jena, Germany.

1890.—SÉGOND, PAUL, M.D. Professor of Clinical Surgery of the Faculty of Medicine, Paris; Surgeon to the Salpétrière. 4 Quai Debilly, Paris, France.

1899.—SINCLAIR, SIR WILLIAM JAPP, M.A., M.D. (Aberd.), M.R.C.P. Professor of Obstetrics and Gynecology, Owens College, Victoria University; Physician to the Manchester Southern Hospital for Diseases of Women and Children. Garvock House, Dudley Road, Whalley Range, Manchester, England.

1894.—*SLAVIANSKY, KRONID, M.D. St. Petersburg, Russia. 1898.

1888.—*SMITH, J. GREIG, M.A., C.M., M.B., F.R.S.E. Bristol, England. 1897.

1896.—STERNBERG, GEORGE MILLER, A.M., M.D., LL.D. Surgeon-General U. S. Army (Retired). 2005 Massachusetts Avenue, Washington, D. C.

1899.—* STORRS, MELANCTHON, A.M., M.D. (*Founder*. Transferred from Ordinary List.) Hartford, Conn. 1900.

1888.—*TAIT, LAWSON, M.D., LL.D., F.R.C.S.E. Birmingham, England. 1899.

1905.—TAYLOR, WILLIAM HENRY, M.D. *President*, 1888–1889. (*Founder*. Transferred from Ordinary List.) 553 West Seventh Street, Cincinnati, Ohio.

1900.—*THORNTON, J. KNOWSLEY, M.B., M.C. Cambridge, England. 1904.

1888.—WILLIAMS, SIR JOHN, BART., M.D., F.R.C.P. Plâs Llanstephan, Carmarthenshire, Wales.

1901.—WEBER, GUSTAV C. E., M.D., LLD. Willoughby, Ohio.

1889.—VON WINCKEL, F., M.D. Professor of Gynecology and Director of the Royal Hospital for Women; Member of the Supreme Council and of the Faculty of Medicine in the University of Munich. 16A Sonnenstrasse, Munich, Germany.

1905.—WYMAN, WALTER, M.D. Surgeon General United States Public Health and Marine Hospital Service. Stoneleigh Court, Washington, D. C.

Total, twenty-five Honorary Fellows.

CORRESPONDING FELLOWS

1899.—BEUTTNER, OSCAR, M.D. Privat-docent of the Faculty of Medicine. 2 Place de la Fasterie, Geneva, Switzerland.

1903.—CROZEL, G., M.D. Professor Libre of Gynecology. Collonges au Mont d'Or (Rhone), France.

1903.—ELLIS, GUILHERME, M.D. Chief Surgeon to the Real Sociedade de Beneficencia Portuguese Hospital. 6 Rua Aurora, S. Paulo, Brazil, S. A.

1891.—GRIFFIN, HERBERT SPOHN, B.A., M.D. Surgeon to Hamilton City Hospital; Examiner in Obstetrics, University of Toronto. 157 Main Street, Hamilton, Ontario, Canada.

1903.—LANE, HORACE MANLEY, M.D., LL.D. President of Mackenzie College, S. Paulo, Brazil. 184 Rua da Consolacao, S. Paulo, Brazil, S. A.

1891.—MACHELL, HENRY THOMAS, M.D., L.R.C.P. Ed. Lecturer on Obstetrics, Women's Medical College; Surgeon to St. John's Hospital for Women; Physician to Victoria Hospital for Sick Children and to Hillcrest Convalescent Home. 95 Bellevue Avenue, Toronto, Ontario, Canada.

1898.—WRIGHT, ADAM HENRY, B.A., M.D. Univ. Toronto, M.R.C.S., Eng.; Professor of Obstetrics in the University of Toronto; Obstetrician and Gynecologist to the Toronto General Hospital and Burnside Lying-in Hospital. *President*, 1891. (Transferred from Ordinary List, 1898.) 30 Gerrard Street, East, Toronto, Ont., Canada.

Total, seven Corresponding Fellows.

ORDINARY FELLOWS

* Deceased. † Resigned.

1902.—ABRAMS, EDWARD THOMAS, A.M., M.D. Consulting Surgeon to the Lake Superior General Hospital; Member of the Michigan State Medical Society; Member of the American Medical Association. Dollar Bay, Mich.

1890.—ASDALE, WILLIAM JAMES, M.D. Professor of Diseases of Women, Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania). 5523 Ellsworth Avenue, Pittsburg, Pa.

1895.—BACON, JOSEPH BARNES, M.D. Professor of Rectal Diseases at the Post-Graduate Medical School; Instructor in Clinical Surgery in the Medical Department of Northwestern University, Chicago. Macomb, Ill.

Founder.—*BAKER, WASHINGTON HOPKINS, M.D. Philadelphia, Pa. 1904.

1895.—BALDWIN, JAMES FAIRCHILD, A.M., M.D. Surgeon to Grant Hospital, 125 South Grant Avenue. Residence, 405 E. Town Street, Columbus, Ohio.

1903.—BANDLER, SAMUEL WYLLIS, M.D. Instructor in Gynecology in the New York Post-Graduate Medical School and Hospital; Adjunct Gynecologist to the Beth Israel Hospital. 134 West Eighty-seventh Street, New York, N. Y.

1889.—†BARROW, DAVID, M.D. Lexington, Ky. 1907.

1907.—BELL, JOHN NORVAL. 418 Fourth Avenue, Detroit, Mich.

1892.—BLUME, FREDERICK, M.D. Gynecologist to the Allegheny General Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecolo-

gist to the Mercy Hospital; President of the Pittsburg Obstetrical Society, 1892. 524 Penn. Avenue, Pittsburg, Pa.

1900.—BONIFIELD, CHARLES LYBRAND, M.D. Professor of Clinical Gynecology in the Medical College of Ohio; President of the Cincinnati Academy of Medicine, 1900; Gynecologist to the Good Samaritan, Christ's, and to Speer's Memorial Hospitals; formerly President of the Cincinnati Obstetrical Society; Secretary of the Section on Obstetrics and Gynecology, American Medical Association, 1901-4, Chairman, 1905. *Vice-president*, 1907. Residence, corner Washington and Gholson Avenues; Office, 409 Broadway, Cincinnati, Ohio.

1896.—BOSHER, LEWIS C., M.D. Professor of Practice of Surgery and Clinical Surgery, Medical College of Virginia; Visiting Surgeon, Memorial Hospital, Richmond. 422 East Franklin Street, Richmond, Va.

Founder.—BOYD, JAMES PETER, A.M., M.D. Professor of Obstetrics, Gynecology and Diseases of Children in the Albany Medical College; Gynecologist to the Albany Hospital; Consulting Obstetric Surgeon to St. Peter's Hospital; Fellow of the British Gynecological Society. 152 Washington Avenue, Albany, N. Y.

1889.—BRANHAM, JOSEPH H., M.D. Professor of Surgery in the Maryland Medical College; Surgeon to the Franklin Square Hospital. 2200 Eutaw Place, corner Ninth Avenue, Baltimore, Md.

1894.—BROWN, JOHN YOUNG, M.D. Professor of Clinical Surgery in Saint Louis University; Chief Surgeon to St. John's Hospital; President of the Mississippi Valley Medical Association, 1898; *Vice-president*, 1905; *President*, 1906; *Executive Council*, 1907. Residence, 303 North Grand Avenue; Office, 612 Metropolitan Building, Saint Louis, Mo.

1889.—*BURNS, BERNARD, M.D. Allegheny, Pa., 1892.

1906.—CANNADAY, JOHN EGERTON, M.D. Former Surgeon in Chief of Sheltering Arms Hospital, Hansford, W. Va.; Fellow of the Southern Surgical and Gynecological Association; Nonresident Honorary Fellow of the Kentucky State Medical Association; Fellow West Virginia Medical Association, Virginia Medical Society, American Medical Association, Tri-State Society

Virginia and the Carolinas, American Association of Railway Surgeons. Coyle and Richardson Building, Charleston, W. Va.

Founder.—CARSTENS, J. HENRY, M.D. Professor of Obstetrics and Clinical Gynecology in the Detroit College of Medicine; Gynecologist to the Harper Hospital; Attending Physician to the Woman's Hospital; Obstetrician to the House of Providence; President of the Detroit Gynecological Society, 1892. *Vice-president*, 1888–89; *President*, 1895; *Executive Council*, 1896–98. 620 Woodward Avenue, Detroit, Mich.

1895.—CHASE, WALTER BENAJAH, M.D. Gynecologist to the Bushwick Hospital; Attending Surgeon and Gynecologist, Central Hospital and Dispensary; Consulting Gynecologist to the Long Island College Hospital; Councilor to the Long Island College Hospital; Fellow of the Brooklyn Gynecological Society (President, 1893); Member Medical Society County of Kings (President, 1892); Permanent Member Medical Society State of New York; Member of the Brooklyn Pathological Society, and Honorary Member of the Queens County Medical Society. *Executive Council*, 1899–1904. 936 St. Marks Avenue, Borough of Brooklyn, New York.

Founder.—†CLARKE, AUGUSTUS PECK, A.M., M.D. Cambridge, Mass. 1908.

1890.—*COLES, WALTER, M.D. Saint Louis, Mo. 1892.

1904.—CONGDON, CHARLES ELLSWORTH, M.D. Gynecologist to the City Hospital for Women. The Markeen, Buffalo, N. Y.

1906.—CRAIG, DANIEL HIRAM, M.D. Surgeon to Out Patients, Free Hospital for Women; Instructor in Gynecology in the Boston Polyclinic. 386 Commonwealth Avenue, Boston, Mass.

1901.—CRILE, GEORGE W., A.M., M.D. Professor of Clinical Surgery in the Western Reserve University Medical College; Surgeon to St. Alexis's Hospital; Associate Surgeon to Lakeside Hospital. *Vice-president*, 1907. Office, Osborn Building; Residence, 1021 Prospect Avenue, Cleveland, Ohio.

1894.—CROFFORD, THOMAS JEFFERSON, M.D. Professor of Physiology and Clinical Lecturer on Diseases of Women in the Memphis Hospital Medical College; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1900. 211 North Third Street, Memphis, Tenn.

1905.—CROSSEN, HARRY STURGEON, M.D. Clinical Professor of Gynecology in Washington University; Gynecologist to Washington University Hospital; Associate Gynecologist to Mullanphy Hospital; Consulting Gynecologist to Bethesda, City and Female Hospitals. 4477 Delmar Avenue, Saint Louis, Mo.

1897.—CUMSTON, CHARLES GREENE, B.M.S., M.D. (Geneva, Switzerland.) Assistant Professor of Surgical Pathology, Tufts College Medical School, Boston; Member of the Massachusetts Medical Society; Honorary Member of the Surgical Society of Belgium, and Corresponding Member of the Obstetrical and Gynecological Society of Paris; Corresponding Member of the Association of Genitourinary Surgeons of France; Corresponding Member of the Pathological Society of Brussels, Belgium; Corresponding Member of the Electrotherapeutical Society of France. *Vice-president*, 1902. 871 Beacon Street, Boston, Mass.

Founder.—†*CUSHING, CLINTON, M.D. San Francisco, Cal. 1900. 1904.

1903.—DAVIS JOHN, D. S., M.D. Professor of Surgery in the Birmingham Medical College; Surgeon to Hillman Hospital; ex-President of Jefferson County Medical Society and of the Board of Health of Jefferson County. 2031 Avenue G, Birmingham, Ala.

1889.—*DAVIS, WILLIAM ELIAS B., M.D. Birmingham, Ala. 1903.

1902.—DEAVER, HARRY CLAY, M.D. Visiting Surgeon to the Episcopal, St. Christopher's, and St. Mary's Hospitals. 1534 North Fifteenth Street, Philadelphia, Pa.

1896.—DEAVER, JOHN BLAIR, M.D. Formerly Assistant Professor of Applied Anatomy at the University of Pennsylvania; Visiting Surgeon to the German Hospital. 1634 Walnut Street, Philadelphia, Pa.

1892.—DORSETT, WALTER BLACKBURN, M.D. Professor of Obstetrics and Gynecology in the Marion Sims-Beaumont College of Medicine, Medical Department of Saint Louis University; Gynecologist to the Missouri Baptist Sanitarium, Evangelical Deaconess's Hospital and the Good Samaritan Hospitals; Consulting Gynecologist to the Saint Louis City and Female Hospitals. President of the Saint Louis Medical Society, 1892; President of the Missouri State Medical Society, 1900; Chairman of the Section on Obstetrics and Gynecology, American Medical Association, 1907. *Vice-president*, 1898; *President*, 1904; *Executive Council*, 1905-1907. Residence, 5070 Washington Avenue; Office, Linmar Building, corner Washington and Vandeventer Avenues, Saint Louis, Mo.

1889.—†*DOUGLAS, RICHARD, M.D. Nashville, Tenn. 1905. 1907.

1892.—*DUFF, JOHN MILTON, A.M., M.D., Ph.D. Pittsburg, Pa. 1904.

1895.—†DUNN, B. SHERWOOD, M.D. New York, N. Y. 1908.

1898—*DUNN, JAMES C., M.D. Pittsburg, Pa. 1907.

1892.—*DUNNING, LEHMAN HERBERT, M.D. Indianapolis, Ind. 1906.

1899.—EASTMAN, THOMAS BARKER, A.B., M.D. Professor of the Medical and Surgical Diseases of Women, Central College of Physicians and Surgeons; Gynecologist to the City Hospital, City Dispensary, and Central Free Dispensary. 331 North Delaware Street, Indianapolis, Ind.

1904.—ELBRECHT, OSCAR H., M.D. Superintendent and Surgeon in charge of the Saint Louis Female Hospital. 5600 Arsenal Street, Saint Louis, Mo.

1906.—ERDMANN, JOHN FREDERICK, M.D. Clinical Professor of Surgery in University-Bellevue Hospital Medical College; Surgeon to Gouverneur, St. Mark's, and Sydenham Hospitals. 60 West Fifty-second Street, New York, N. Y.

1895.—FERGUSON, ALEXANDER HUGH, M.D. Professor of Surgery at the Chicago Post-Graduate Medical School. Resi-

dence, 4619 Grand Boulevard; Office, Suite 300, Reliance Building, 100 State Street, Chicago, Ill.

1903.—FRANK, LOUIS, M.D. Professor of Abdominal and Pelvic Surgery in the Medical Department of Kentucky University; Surgeon to Louisville City Hospital; Surgeon and Gynecologist to the Broadway Infirmary. Office, The Atherton; Residence, 1415 Fourth Avenue, Louisville, Ky.

1890.—FREDERICK, CARLTON CASSIUS, B.S., M.D. Clinical Professor of Gynecology in the Medical Department of Buffalo University; Obstetrician and Gynecologist to the Buffalo Woman's Hospital; Obstetrician to the Widows' and Infants' Asylum; Gynecologist to the Erie County Hospital. 64 Richmond Avenue, Buffalo, N. Y.

1891.—GIBBONS, HENRY, JR., A.M., M.D. Dean and Professor of Obstetrics and Diseases of Women and Children in Cooper Medical College; Consulting Physician to the French and the Children's Hospitals. 2405 Fillmore Street, San Francisco, Cal.

1902.—GILLETTE, WILLIAM J., M.D. Professor of Abdominal Surgery and Gynecology in the Toledo Medical College; Surgeon to Robinwood Hospital. 1613 Jefferson Street, Toledo, Ohio.

1895.—GOLDSPOHN, ALBERT, M.D. Professor of Gynecology, Post-Graduate Medical School; Senior Gynecologist, German Hospital; Attending Gynecologist, Post-Graduate and Charity Hospitals. *Vice-president*, 1901. Residence, 519 Cleveland Avenue; Office, 34 Washington Street, Chicago, Ill.

1904.—GOODFELLOW, GEORGE E., M.D. Division Surgeon San Francisco Railroad. Care of R. W. Kenny, 308 South Broadway, Los Angeles, Cal.

1903.—GUENTHER, EMIL ERNEST, M.D. Senior Assistant Gynecologist and Obstetrician to St. Barnabas's Hospital; Attending Surgeon to the German Hospital, Newark. 159 West Kinney Street, Newark, N. J.

1907.—GUITERAS, RAMON. 75 West Fifty-fifth Street, New York, N. Y.

1892.—*HAGGARD, WILLIAM DAVID, M.D. Nashville, Tenn. 1901.

1900.—HAGGARD, WILLIAM DAVID, JR., M.D. Professor of Gynecology, Medical Department University of Tennessee; Professor of Gynecology and Abdominal Surgery, University of the South (Sewanee); Gynecologist to the Nashville City Hospital; President of the Nashville Academy of Medicine; Secretary of the Section on Diseases of Women and Obstetrics, American Medical Association, 1898; Fellow (and Secretary) of the Southern Surgical and Gynecological Association; Member of the Alumni Association of the Woman's Hospital, N. Y. *Vice-president*, 1904. 148 Eighth Avenue, North, Nashville, Tenn.

1906.—HALL, JOSEPH ARDA, M.D. Clinical Assistant in Gynecology at the Miami Medical College, Cincinnati. 628 Elm Street, Cincinnati, Ohio.

1889.—HALL, RUFUS BARTLETT, A.M., M.D. Professor of Gynecology and Clinical Gynecology at the Miami Medical College; Gynecologist to the Presbyterian Hospital; Member of the British Gynecological Association; of the Southern Surgical and Gynecological Association; of the American Medical Association; of the Ohio State Medical Society (President, 1900); of the Cincinnati Academy of Medicine; President of the Cincinnati Obstetrical Society, 1896. *Vice-president*, 1891; *President*, 1900; *Executive Council*, 1904–1907. Berkshire Building, 628 Elm Street, Cincinnati, Ohio.

1902.—HAMILTON, CHARLES SUMNER, A.B., M.D. Professor of the Principles of Surgery in Sterling Medical College; Surgeon to Mt. Carmel and the Children's Hospitals. 1 North Fourth Street, Columbus, Ohio.

1894.—HAYD, HERMAN EMIL, M.D., M.R.C.S. Eng. Gynecologist to the Erie County Hospital; Surgeon to the German Hospital. *Vice-president*, 1903. 493 Delaware Avenue, Buffalo, N. Y.

Founder.—*HILL, HAMPTON EUGENE, M.D. Saco, Me. 1894.

1891.—HOLMES, JOSUS BILLINGTON SANDERS, M.D. Professor of Obstetrics in the Southern Medical College; President of the Georgia State Medical Association, 1890; Member of the

Southern Surgical and Gynecological Association; Member of the American Medical Association. Valdosta, Ga.

1891.—HOWITT, HENRY, M.D., M.R.C.S. Eng. Surgeon to the Guelph General and St. Joseph's Hospital, Guelph; Member of the British and Ontario Medical Associations; Medical Health Officer for the City of Guelph. *Vice-president*, 1895. 235 Woolwich Street, Guelph, Ontario, Canada.

1905.—HUGGINS, RALEIGH R., M.D. Surgeon to St. Francis Hospital. Diamond Building, Fifth Avenue and Liberty Street, Pittsburg, Pa.

1895.—HUMISTON, WILLIAM HENRY, M.D. Associate Professor of Gynecology in the Medical Department of Western Reserve University; Gynecologist in Chief to St. Vincent's Charity Hospital; Consulting Gynecologist to the City Hospital; President of the Ohio State Medical Society, 1898. *Executive Council*. 1902–1903. Office, 536 Rose Building; Residence, 2041 East Eighty-ninth Street, Cleveland, Ohio.

1898.—*HYDE, JOEL W., M.D. Brooklyn, N. Y. 1907.

1901.—ILL, CHARLES L., M.D. Surgeon to German Hospital; Assistant Gynecologist to St. Michael's and St. Barnabas's Hospitals; Obstetrician to St. Barnabas's Hospital, Newark; Assistant Gynecologist to all Souls' Hospital, Morristown. 188 Clinton Avenue, Newark, N. J.

Founder.—ILL, EDWARD JOSEPH, M.D. Surgeon to the Woman's Hospital; Medical Director of St. Michael's Hospital; Gynecologist and Supervising Obstetrician to St. Barnabas's Hospital; Consulting Gynecologist to the German Hospital and the Bnoth Israel Hospital of Newark, N. J., to All Souls' Hospital, Morristown, N. J., and to the Mountain Side Hospital, Montclair, N. J.; Member of the Southern Surgical and Gynecological Association; Vice-president from New Jersey of the Pan-American Medical Congress of 1893; President of the Medical Society of the State of New Jersey, 1907. *Vice-president*, 1893; *President*, 1899; *Executive Council*, 1901–1903. 1002 Broad Street, Newark, N. J.

1897.—*INGRAHAM, HENRY DOWNER, M.D. Buffalo, N. Y. 1904.

Founder.—*JARVIS, GEORGE CYPRIAN, M.D. Hartford, Conn. 1900.

1894. —JAYNE, WALTER ADDISON, M.D. Professor of Gynecology in the Medical Department of the University of Denver; Consultant in Gynecology, St. Luke's Hospital; Gynecologist to the Arapahoe County Hospital, Denver. 416 McPhee Building, Denver, Col.

1892. —*JELKS, JAMES THOMAS, M.D. Hot Springs, Ark. 1902.

1891.—JOHNSTON, GEORGE BEN, M.D. Professor of Gynecology and Abdominal Surgery in the Medical College of Virginia; Surgeon to the Old Dominion Hospital; Physician to St. Joseph's Female Orphan Asylum; Consulting Surgeon to the City Free Dispensary; Member of the American Surgical Association, (President, 1905); Vice-president of the Southern Surgical and Gynecological Association, 1892 (President, 1897); ex-President of the Richmond Medical and Surgical Society; President of the Virginia State Medical Society, 1897. *Vice-president*, 1897. 407 East Grace Street, Richmond, Va.

1906.—JONAS, ERNST, M.D. Gynecologist to the Saint Louis Jewish Hospital; Surgeon to the Martha Parsons Free Hospital for Children; Instructor in Surgery and Associate Chief in the Surgical Clinic at the Washington University Hospital. 4474 Westminster Place, Saint Louis, Mo.

1902.—KEEFE, JOHN WILLIAM, M.D. Attending Surgeon to the Gynecological Department of St. Joseph's Hospital; Attending Surgeon to the Rhode Island Hospital; Consulting Surgeon to the Providence Lying-in Hospital. 259 Benefit Street, Providence, R. I.

1893.—*LAIDLEY, LEONIDAS HAMLIN, M.D. St. Louis, Mo. 1908.

1898.—LANGFITT, WILLIAM STERLING, M.D. Surgeon in chief to St. John's Hospital. 608 Fulton Building, Sixth Street and Duquesne Way, Pittsburg, Pa.

1901.—LINCOLN, WALTER RODMAN, B.A., M.D. Lecturer on Gynecology, College of Physicians and Surgeons of Cleveland. Lennox Building, corner Erie Street and Euclid Avenue, Cleveland, Ohio.

1900.—LINVILLE, MONTGOMERY, A.B., M.D. Surgeon to Slemango Valley Hospital; Surgeon to three lines of Pennsylvania Railways. 35 North Mercer Street, New Castle, Pa.

1890.—LONGYEAR, HOWARD WILLIAMS, M.D. Gynecologist to Harper Hospital; Physician to the Woman's Hospital; President of the Detroit Gynecological Society, 1889; Chairman of the Section on Obstetrics and Gynecology of the Michigan State Medical Society, 1892. *Vice-president*, 1893; *President*, 1905; *Executive Council*, 1906-1907. 271 Woodward Avenue, Detroit, Mich.

Founder.—*LOTHROP, THOMAS, M.D. Buffalo, N. Y. 1902.

1896.—LYONS, JOHN ALEXANDER, M.D. Instructor in Gynecology at the Post-Graduate Medical School; Gynecologist and Lecturer to Nurses at the Chicago Hospital. 4118 State Street, Chicago, Ill.

1901.—MCCANDLESS, WILLIAM A., A.M., M.D. Chief Surgeon St. Mary's Infirmary; Visiting Surgeon to the City Hospital; Professor of Special and Clinical Surgery, Marion Sims-Beaumont College of Medicine. 3857 Westminster Place, Saint Louis, Mo.

1891.—*MCCANN, JAMES, M.D. Pittsburg, Pa. 1893.

1898.—*MCCANN, THOMAS, M.D. Pittsburg, Pa. 1903.

Founder.—MCMURTRY, LEWIS SAMUEL, A.M., M.D. Professor of Gynecology in the Hospital College of Medicine; Gynecologist to Sts. Mary and Elizabeth Hospital; Fellow of the Edinburgh Obstetrical Society; Fellow of the British Gynecological Society; Corresponding Member of the Obstetrical Society of Philadelphia and of the Gynecological Society of Boston; Member (President, 1891) of the Southern Surgical and Gynecological Association; President American Medical Association, 1905. *Executive Council*, 189-1892, 1895-1905; *President*, 1893. The Atherton, Louisville, Ky.

Founder.—MANTON, WALTER PORTER, M.D. Professor of Clinical Gynecology and Adjunct Professor of Obstetrics, Detroit College of Medicine; Gynecologist to Harper Hospital and the Eastern Michigan Asylum for the Insane; Vice-president of Medical Board of the Woman's Hospital and Foundling's Home; Consulting Gynecologist to the Northern Michigan Asylum and St. Joseph's Retreat; Gynecic Surgeon to the House

of the Good Shepherd; President of the Detroit Academy of Medicine, 1892-1894; President of the Detroit Gynecological Society, 1890; Fellow of the British Gynecological Society; Fellow of the Royal Microscopical Society and of the Zoological Society of London. *Vice-president*, 1894. 32 Adams Avenue, W., Detroit, Mich.

Founder.—†*MAXWELL, THOMAS JEFFERSON, M.D. Keokuk, Iowa. 1902. 1905.

Founder.—MILLER, AARON BENJAMIN, M.D. Professor of Gynecology in the Medical Department of Syracuse University; Gynecologist to St. Joseph's Hospital, House of the Good Shepherd and Dispensary. *Vice-president*, 1899; 1904. 326 Montgomery Street, Syracuse, N. Y.

1905.—MILLER, JOHN, M.D Assistant to the Chair of Clinical Gynecology in the Medical College of Ohio, University of Cincinnati. 432 West Fourth Street, Cincinnati, Ohio.

1896.—*MOONEY, FLETCHER D., M.D. Saint Louis, Mo. 1897.

1907.—MORIARTA, DOUGLAS C. 511 Broadway, Saratoga Springs, N. Y.

1904.—MORRIS, LEWIS COLEMAN, M.D. Professor of Gynecology and Abdominal Surgery in the Birmingham Medical College; Secretary, Medical Association State of Alabama, 1904; Member of Jefferson County Board of Health. 714 North Eighteenth Street, Birmingham, Ala.

1890.—MORRIS, ROBERT TUTTLE, A.M., M.D. Professor of Surgery in the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1892; *Executive Council*, 1906; *President*, 1907. 616 Madison Avenue, New York, N. Y.

Founder.—*MOSES, GRATZ ASHE, M.D. Saint Louis, Mo. 1901. (See Honorary Fellows.)

1904.—MURPHY, JOHN BENJAMIN, A.M., M.D. Professor of Surgery and Head of Department North Western University; Chief Surgeon to Mercy Hospital and St. Joseph's Hospital. Attending Surgeon to Wesley Hospital and Columbus Hospital. Consulting Surgeon to Alexian Brothers', Cook County Hospitals, etc. Residence, 3305 Michigan Avenue; Office, 400 Reliance Building, 100 State Street, Chicago, Il'

Founder.—†*MYERS, WILLIAM HERSCHEL, M.D. Fort Wayne, Ind. 1904. 1907. (See Honorary Fellows.)

1904.—NEWMAN, LOUIS EDWARD, A.M., M.D. President of the Saint Louis Obstetrical and Gynecological Society, 1904. 5381 Waterman Avenue, Saint Louis, Mo.

1897.—NICHOLS, WILLIAM R., M.D. 295 Edmunton Street, Winnipeg, Manitoba, Canada.

1896.—NOBLE, GEORGE HENRY, M.D. Gynecologist to the Grady Hospital; Secretary to the Section on Obstetrics and Gynecology of American Medical Association, 1897; Member of the Southern Surgical and Gynecological Association. 131 and 133 South Pryor Street, Atlanta, Ga.

1903.—NOBLE, THOMAS BENJAMIN, M.D. Professor of Abdominal Surgery in the Central College of Physicians and Surgeons; Consultant in the Diseases of Women at the City Hospital, City Dispensary, and Protestant Deaconess's Hospital, Indianapolis. 427 Newton Claypool Building, Indianapolis, Ind.

1907.—OLMSTED, INGERSOLL, 215 James Street, South, Hamilton, Ont., Can.

1889.—†PAINE, JOHN FANNIN YOUNG, M.D. Galveston, Texas. 1904.

1899.—PANTZER, HUGO OTTO, M.D. Professor of Clinical Gynecology in the Indiana Medical College, Medical Department of Purdue University; Gynecologist to City Hospital, City Dispensary, St. Vincent's and Deaconess's Hospitals; Member of Indianapolis, Indiana State, Ohio Valley, Mississippi Valley Medical Associations and Indianapolis Gynecological Association. *Executive Council*, 1907. 224 North Meridian Street Indianapolis, Ind.

1890.—PEARSON, WILLIAM LIBBY, M.D. 713 Union Street, Schenectady, N. Y.

1899.—PFAFF, ORANGE G., M.D. Adjunct Professor of Obstetrics and Diseases of Women in the Medical College of Indiana; Gynecologist to the City, Deasoness's, and St. Vincent's Hospitals. 1337 North Pennsylvania Street, Indianapolis, Ind.

1898.—PORTER, MILES F., M.D. Professor of Surgery in the Indiana Medical College, Medical Department of Purdue University; Surgeon to Hope Hospital; ex-President Indiana State

Medical Society. *Vice-president*, 1902. 207 West Wayne Street, Fort Wayne, Ind.

Founder.—POTTER, WILLIAM WARREN, M.D. Consulting Gynecologist to the Woman's Hospital; Consulting Surgeon to the Buffalo General Hospital; President and Examiner in Obstetrics and Gynecology, New York Board of Medical Examiners; Chairman of Section of Obstetrics and Diseases of Women, American Medical Association, 1890; President of the Buffalo Obstetrical Society, 1884-1886; Member of the Southern Surgical and Gynecological Association; President of the Medical Society of the State of New York, 1891; Executive President of the Section of Gynecology and Abdominal Surgery, First Pan-American Medical Congress (1893). *Secretary*, 1888-1907. 238 Delaware Avenue, Buffalo, N. Y.

1903.—POUCHER, JOHN WILSON, M.D. Consulting Surgeon to Vassar Brothers Hospital, Poughkeepsie. 339 Mill Street, Poughkeepsie, N. Y.

Founder.—PRICE, JOSEPH, M.D. Physician in charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary; Member of the Southern Surgical and Gynecological Association; Honorary Fellow of the Medical Society of the State of New York; Honorary Fellow of the South Carolina Medical Society; Honorary Fellow of the Virginia Medical Society; Member of the British Gynecological Association and of the Edinburgh Obstetrical Society. *Executive Council*, 1894-1895; *President*, 1896. 241 North Eighteenth Street, Philadelphia, Pa.

1904.—REDER, FRANCIS, M.D. Chief of Clinic, Department of Rectal Diseases, Medical Department of Washington University; Surgeon to Burlington Rink. 4629 Cook Avenue, Saint Louis, Mo.

Founder.—REED, CHARLES ALFRED LEE, A.M., M.D. Professor of Gynecology and Abdominal Surgery in the Cincinnati College of Medicine and Surgery and in the Woman's Medical College of Cincinnati; Surgeon to the Cincinnati Free Surgical Hospital for Women; Secretary-General of the First Pan-American Medical Congress, 1893; Member of the Southern Surgical and Gynecological Society; Fellow of the British Gynecological Society; President of the American Medical Association, 1901. *Executive Council*, 1890-1897; *President*,

1898. Rooms 61 and 62, The Groton, N. E. corner Seventh and Race Streets, Cincinnati, Ohio.

1905.—REES, CHARLES MAYRANT, M.D. Professor of Abdominal Surgery and Gynecology in Charleston Medical School; Member of the Medical Society of the State of South Carolina; Member of the American Medical Association and of the Southern Surgical and Gynecological Association. Residence, 169 Broad Street; Office, 89½ Wentworth Street, Charleston, S. C.

1896.—*RHETT, ROBERT BARNWELL, JR., M.D. Charleston, S. C. 1901.

1890.—RICKETTS, EDWIN, M.D. Professor of Abdominal Surgery and Gynecology at the Cincinnati Polyclinic; Member of the American and British Medical Associations; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1899; *Executive Council*, 1901, 1904; *President*, 1902. 408 Broadway, Cincinnati, Ohio.

1889.—*ROHÉ, GEORGE HENRY, M.D. Baltimore, Md. 1899.

1892.—ROSENWASSER, MARCUS, M.D. Dean and Professor of Diseases of Women and Abdominal Surgery in the University of Wooster; Gynecologist to the Cleveland Hospital for Women and Children; Consulting Gynecologist to the City Hospital; Member of the American Medical and Ohio State Medical Associations. *Vice-president*, 1903. Residence, 722 Woodland Avenue; Office, 456 Lennox Building, Cleveland, Ohio.

1890.—ROSS, JAMES FREDERICK WILLIAM, M.D.C.M., L.R.C.P., Lond., Eng. Professor of Gynecology, University of Toronto; Chief of Gynecological Service, Toronto General Hospital; Late President Ontario Medical Association; President Academy of Medicine, Toronto. *Executive Council*, 1892–1896, 1905–1907; *President*, 1897. Fellow of the Edinburgh Obstetrical Society. Sherbourne and Wellesley Streets, Toronto, Ont., Canada.

1902.—RUNYAN, JOSEPH PHINEAS, M.D. Division Surgeon to the Choctaw, Oklahoma and Gulf Railroad; Secretary of the Arkansas State Medical Association, President, 1904. 1514 Schiller Avenue, Little Rock, Ark.

1906.—RUTH, CHARLES EDWARD, M.D. Professor of Surgery and Clinical Surgery in the Keokuk Medical College (College

of Physicians and Surgeons); Surgeon to the Chicago and Rock Island Pacific Railway. Ponce, Porto Rico.

1903.—SADLIER, JAMES EDGAR, M.D. Consulting Surgeon to Highland Hospital, Poughkeepsie. 295 Mill Street, Poughkeepsie, N. Y.

1904.—SCHWARZ, HENRY, M.D. Professor of Obstetrics, Medical Department of Washington University. 440 North Newstead Avenue, Saint Louis, Mo.

1901.—SCOTT, N. STONE, A.M., M.D. Professor of Surgery, College of Physicians and Surgeons, Cleveland; Consulting Surgeon to City Hospital; Consulting Surgeon to St. John's Hospital; Surgeon to the Out-patient Department of Cleveland General Hospital. Residence, 531 Prospect Avenue; Office, 603-604 Citizens' Building, Cleveland, Ohio.

1895.—SELLMAN, WILLIAM ALFRED BELT, M.D. Professor of the Diseases of Women and Children at the Baltimore University School of Medicine; Member of the Medical and Chirurgical Faculty of Maryland; also of the Baltimore Medical and Surgical Association; the Gynecological and Obstetrical Association of Baltimore; the Clinical Society; the Baltimore Journal Club; and of the American Medical Association. 5 East Biddle Street, Baltimore, Md.

1889.—* SEYMOUR, WILLIAM WOTKYNS, A.B., M.D. Troy, N. Y. 1904.

1902.—SIMONS, MANNING, M.D. Professor of Clinical Surgery in the Medical College of the State of South Carolina; Surgeon to St. Francis Xavier's Infirmary and to the City Hospital. Residence, 22 Rutledge Avenue; Office, 111 Church Street, Charleston, S. C.

1899.—SIMPSON, FRANK FARROW, A.B., M.D. Assistant Gynecologist to Mercy Hospital; *Vice-president*, 1906. 1112 Bessemer Building, Pittsburg, Pa.

1901.—SKEEL, ROLAND EDWARD, M.D. Professor of Obstetrics in Cleveland College of Physicians and Surgeons; Consulting Obstetrician to the City Hospital; Obstetrician to the Cleveland General Hospital. 785 Prospect Street, Cleveland, Ohio.

1891.—SMITH, CHARLES NORTH, M.D. Professor of Obstet-

rics and Clinical Gynecology in the Toledo Medical College; Gynecologist to St. Vincent's Hospital. 234 Michigan Street, Toledo, Ohio.

1904.—SMITH, WILLIAM S., M.D. Professor of Gynecology in the Maryland Medical College; Gynecologist to Franklin Square Hospital. 330 North Charles Street, Baltimore, Md.

1901.—STAMM, MARTIN, M.D. Professor of Operative and Clinical Surgery in the College of Physicians and Surgeons, Cleveland. 316 Napoleon Street, Fremont, Ohio.

1902.—STARK, SIGMAR, M.D. Professor of Obstetrics and Clinical Gynecology in the Cincinnati College of Medicine and Surgery; Gynecologist to the Jewish Hospital. 1108 East McMillan Street, Cincinnati, Ohio.

Founder.—*STORRS, MELANCTHON, A.M., M.D. Hartford. Conn. (See Honorary List, 1899.) 1900.

1904.—SUTCLIFFE, JOHN ASBURY, A.M., M.D. Consulting Surgeon to St. Vincent's Infirmary; Consultant in Genitourinary Diseases to the City Hospital and to the Protestant Deaconess's Hospital. 824 North Delaware Street, Indianapolis, Ind.

1899.—SWOPE, LORENZO W., M.D. Surgeon to the Consolidated Traction Company; Chief Surgeon to Wabash Railroad, Pittsburg Division; Surgeon to Western Pennsylvania Hospital; Surgeon to Passavant Hospital; Member of the Allegheny County Medical Society; Member of the American Medical Association. Residence, 4629 Bayard Street; Office, 1105 Park Building, Pittsburg, Pa.

190[illegible].—TATE, MAGNUS ALFRED, M.D. Professor of Obstetrics Miami Medical College; President Cincinnati Academy of Medicine, 1905. 19 West Seventh Street, Cincinnati, Ohio.

Founder.—†TAYLOR, WILLIAM HENRY, M.D., Ph.D. Cincinnati, Ohio. 1898. (See Honorary Fellows.)

1895.—THOMPSON, FRANK DANIEL, M.D. Professor of Gynecology in the Medical Department of Fort Worth University. 412 Adams Street, Fort Worth, Texas.

Founder.—*TOWNSEND, FRANKLIN, A.M., M.D. Albany, N. Y. 1895.

1907.—VANCE, AP MORGAN. 921 Fourth Avenue, Louisville, Ky.

Founder.—VANDER VEER, ALBERT, A.M., M.D., Ph.D. Professor of Didactic, Clinical, and Abdominal Surgery in the Albany Medical College; Attending Surgeon to the Albany Hospital; Consulting Surgeon to St. Peter's Hospital; Fellow of the American Surgical Association (President, 1906); Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Boston Gynecological Society. *Executive Council*, 1889-1891, 1895-1905; *President*, 1892. 28 Eagle Street, Albany, N. Y.

1891.—WALKER, EDWIN, M.D., Ph.D. Gynecologist to the Evansville City Hospital; President of the Indiana State Medical Society, 1892; Member of the American Medical Association and of the Mississippi Valley Medical Association; Member of the Southern Surgical and Gynecological Association; First Vice-president American Medical Association, 1907. *Vice-president*, 1901. 712 Upper Fourth Street, Evansville, Ind.

1907.—WALKER, H. O. 621 Washington Arcade, Detroit, Mich.

1907.—WEISS, EDWARD A. 524 Penn Avenue, Pittsburg, Pa.

1889.—WENNING, WILLIAM HENRY, AM.., M.D. Clinical Professor of Gynecology at the Miami Medical College; Chief of Staff and Gynecologist to St. Mary's Hospital. 5 Garfield Place, Cincinnati, Ohio.

Founder.—WERDER, XAVIER OSWALD, M.D. Professor of Gynecology at the Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania); Consulting Gynecologist at the Allegheny General Hospital; Gynecologist to the Mercy Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to St. Francis's Hospital; Consulting Surgeon to the South Side Hospital. *Treasurer*, 1888-1907. 524 Penn Avenue, Pittsburg, Pa.

1904.—WEST, JAMES NEPHEW, M.D. Professor of Diseases of Women and Secretary of the Faculty at the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1906. 71 West Forty-ninth Street, New York.

1896.—WESTMORELAND, WILLIS FOREMAN, M.D. Professor of Surgery at the Atlanta Medical College. Suite 241, Equitable Building, Atlanta, Ga.

1897.—WHITBECK, JOHN F. W., M.D. Gynecologist to the Rochester City Hospital; Commissioner of the Board of Health. 322 East Avenue, Rochester, N. Y.

1907.—ZIEGLER, CHARLES E. 407 South Highland Avenue, Pittsburg, Pa.

1900.—ZINKE, ERNST GUSTAV, M.D. Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio, University of Cincinnati; Obstetrician and Gynecologist to the German Hospital; Obstetrician to the Maternity Hospital. 4 West Seventh Street, Cincinnati, Ohio.

Total, one hundred and thirteen Ordinary Fellows.

MINUTES OF THE PROCEEDINGS

AT THE

TWENTIETH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

HELD AT THE

CADILLAC HOTEL, DETROIT, MICHIGAN

SEPTEMBER 17, 18 AND 19, 1907

TWENTIETH ANNUAL MEETING

SEPTEMBER 17, 18 AND 19, 1907

The following-named Fellows were present:

ABRAMS, EDWARD T.	DOLLAR BAY.
ASDALE, WILLIAM J.	PITTSBURG.
BALDWIN, JAMES F.	COLUMBUS.
BELL, JOHN N.	DETROIT.
BONIFIELD, CHARLES L.	CINCINNATI.
CANNADAY, JOHN E.	CHARLESTON, W. VA.
CARSTENS, J. HENRY	DETROIT.
ELBRECHT, OSCAR H.	ST. LOUIS.
FREDERICK, CARLTON C.	BUFFALO.
GILLETTE, WILLIAM J.	TOLEDO.
HALL, RUFUS B.	CINCINNATI.
HAYD, HERMAN E.	BUFFALO.
HOWITT, HENRY	GUELPH.
HUGGINS, RALEIGH R.	PITTSBURG.
HUMISTON, WILLIAM H.	CLEVELAND.
ILL, EDWARD J.	NEWARK.
JONAS, ERNST	ST. LOUIS.
KEEFE, JOHN W.	PROVIDENCE.
LANGFITT, WILLIAM S.	PITTSBURG.
LINVILLE, MONTGOMERY	NEW CASTLE.
LONGYEAR, HOWARD W.	DETROIT.
LYONS, JOHN A.	CHICAGO.
MANTON, WALTER P.	DETROIT.
MORRIS, ROBERT TUTTLE	NEW YORK.
OLMSTED, INGERSOLL	HAMILTON.
PANTZER, HUGO O.	INDIANAPOLIS.
PFAFF, ORANGE G.	INDIANAPOLIS.
PORTER, MILES F.	FORT WAYNE.
POTTER, WILLIAM W.	BUFFALO.
PRICE, JOSEPH	PHILADELPHIA.
REDER, FRANCIS	ST. LOUIS.
REES, CHARLES M.	CHARLESTON.
ROSS, JAMES F. W.	TORONTO.

SADLIER, JAMES E.	POUGHKEEPSIE.
SELLMAN, WILLIAM A. B.	BALTIMORE.
SKEEL, ROLAND E.	CLEVELAND.
TATE, MAGNUS A.	CINCINNATI.
VANDER VEER, A.	ALBANY.
WALKER, HENRY O.	DETROIT.
WEST, JAMES N.	NEW YORK.
ZINKE, E. GUSTAV	CINCINNATI.

Letters or messages of regret were received from the following-named Fellows:

Honorary.—A. E. Cordes, Geneva; Mathews Joseph McDowell, Louisville; Theodore A. McGraw, Detroit; Sir William Japp Sinclair, Manchester; George Miller Sternberg, Washington; Surgeon-General Walter Wyman, Washington.

Corresponding.—G. Crozel, Collonges au Mont d'Or (Rhone), France; Guilherme Ellis, S. Paulo, Brazil; Horace M. Lane, S. Paulo, Brazil; Adam H. Wright, Toronto.

Ordinary.—Joseph B. Bacon, Macomb; Samuel W. Bandler, New York; John Young Brown, St. Louis; Walter B. Chase, Brooklyn; Daniel H. Craig, Boston; Charles G. Cumston, Boston; John B. Deaver, Philadelphia; Walter B. Dorsett, St. Louis; George E. Goodfellow, San Francisco; Charles E. Ruth, Denver; N. Stone Scott, Cleveland; Frank F. Simpson, Pittsburg; William S. Smith, Baltimore.

The Executive Council presented the following list of visitors as members by invitation for this meeting:

Banks, S. Gertrude	Detroit.
Banning, Carl	"
Brown, G. V.	"
Clelland, James, Jr.	"
Davis, J. E.	"
Flinkerman, J.	"
Gunsolus, Kenneth	"
Harris, E. W.	"
Hawkins, Harriet	"
Henderson, W. R.	"
Hislop, Robert	"
Huntman, X. J.	"
Husen, Florence	"
Judson, H. C.	"
Lane, Oliver H.	"

Larned, E. R.	Detroit.
Lee, E. C.	"
Loucks, R. E.	"
Manton, Walter P., Jr.	"
Metcalf, Wm. F.	"
Padweated, Roland	"
Polszxer, J. L.	"
Potter, G. E.	"
Schenck, B. R.	"
Schwarz, M. J.	"
Silver, M. E.	"
Smith, Eugene	"
Spillane, Thos. F.	"
Spranger, N. M.	"
Safford, H. E.	"
Tappey, E. T.	"
Utter, DeLancey J.	"
Valeno, H. D.	"
Walmsby, David L.	"
Williamson, Hedley	"
Zefflin, W. E.	"
Dice, W. G.	Toledo.
Duemling, H. A.	Fort Wayne.
Foster, S. D.	Toledo.
Fox, J.	"
Ill, Edgar A.	Newark, N. J.
Langham, W. H.	Homestead, Pa.
Lewis, F. Park	Buffalo.
Nealon, Wm. A.	Pittsburg.
Olmsted, W. E.	Niagara Falls, Can
Southworth, Chas. T.	Monroe, Mich.
Van Hoosen, Bertha	Chicago.
Vander Veer, J. N.	Albany.
Whitford, J. B.	Fentonville, Mich.

FIRST DAY—*Tuesday, September* 17, 1907.

Morning Session.—The Association met at the Hotel Cadillac, and was called to order by the President, Dr. Robert T. Morris, of New York, at 9:50 A.M.

The President introduced Dr. A. N. Collins, President of Wayne County Medical Society, who delivered the following

ADDRESS OF WELCOME.

Mr. President and Gentlemen: I have no formal address to deliver to you other than a few words of welcome. We are very glad, indeed, and feel highly honored, that you have chosen this city for your meeting. We recognize in you, gentlemen, the sinew of the medical profession. I was thinking this morning that the obstetrician and gynecologist cover a large section of medicine. In fact, they take in almost all medicine except orchitis, and even that indirectly. We recognize you as the leaders in one of the largest branches of medicine. It is one of the most important branches; it is a branch of medicine that steadies the hand that rocks the cradle.

While I have no set speech to make, as I have before remarked, I simply want you to feel that you are welcome to our city. I am sure in speaking for the Wayne County Medical Society I voice the feeling of every member in it when I say that this aggregation of men from all over our country in this branch of medicine, meeting in our city, can be but a leaven, an inspiration to all of our workers in the city. I hope our members will find time to meet you and to make you feel that you are welcome.

We have a city here of which we are proud, and a man who is not proud of his own city is not worthy of being a citizen. (Applause.) We can tell you a lot of things about the big things we have. We supply a great many drugs; we make a great many stoves; we make automobiles that keep the profession poor (laughter), and we do a great many other things. In medicine, I must confess, we have not learned what we should have learned. Michigan has produced many millionaires. Our mines, our lumber and shipping have given to Michigan a great deal of money, and Detroit a great deal of money; but for some reason, which is difficult to comprehend, our money has not been spent or directed toward the advancement of our hospitals. For a city of the size and wealth of Detroit we are woefully deficient in hospitals. We have not had the faculty that some of the members of our profession have had, of impressing upon our millionaires that the best monument is that which could care for the sick and helpless. Our millionaires die and leave their money sometimes to degenerate sons. We have not been able to impress them with the fact that to their own city they owe a debt. Our churches flourish fairly well, but our hospitals

are sadly in need, and we need more philanthropists to build hospitals.

We desire to express our appreciation for what you have done toward our city by coming here, by giving us your presence, and if we can make you realize in any way that you are not only welcome, but doubly welcome, it will please us and afford us great satisfaction. (Applause.)

I know you are here for business, and I simply wish to say again that you are welcome—yes, thrice welcome to our city. We hope to get inspiration from your presence which will extend throughout the year in our own medical work. (Applause.)

The President then introduced Vice-president, Dr. Charles L. Bonifield, of Cincinnati, asking him to make a response to the address of welcome in behalf of the Association.

RESPONSE BY DR. CHARLES L. BONIFIELD.

Mr. President, Fellows and Guests of the Association: I take great pleasure in expressing the gratitude of the American Association of Obstetricians and Gynecologists for the cordial welcome that has been extended to us through the President of the Wayne County Medical Society, Dr. Collins.

We are very glad to be in Detroit at all times, as it is one of the most beautiful cities in the United States, particularly pleasant at this time of the year. Its broad avenues and well-kept streets; its beautiful parks, and, above all, its glorious water front, make it always a very attractive city. Detroit has other attractions to some of us, because it is the gateway to the great North, the gateway to vacation land. For a number of years it has been my custom, when the time came for rest, to leave Cincinnati—in heat and dust, get aboard a sleeper, and the next morning wake up in Detroit, feeling already that work was behind and rest ahead; because it matters not whether one wishes to spend his time in navigating these great fresh water seas, or sailing in his own little craft in some miniature lake in the North, or whether he wishes to go to some popular resort, or wishes to take his guide, canoe, and gun and camp in the wilderness, Detroit is the gateway to his heart's desire. So we have always a warm, affectionate place in our memory for Detroit. (Applause.)

Again, we are glad to meet in Detroit because in the twenty years that this Association has existed, it has neither degenerated into a mutual admiration society nor a knocker's club. All of our volumes of Transactions show that we meet annually for

each worker to bring in the sheaves he has garnered, feeling assured that when he does it the wheat will be threshed out without prejudice, with absolute frankness, regardless of whether a man is an unknown quantity in the medical profession or one of its leaders.

In doing this work for the medical profession of America, I will say that we have in Detroit three members absolutely typical of the membership of this Association, and we are glad to meet in their home and to greet them on their native heath. (Loud applause.)

At this juncture, Dr. James F. W. Ross arose and said: Mr. President, I crave your pardon for a moment, by asking you to suspend the rules and give me the floor.

THE PRESIDENT: Proceed, Dr. Ross.

DR. ROSS (resuming): This being the twentieth annual meeting of our Association, it has been thought by several members that it would be a graceful act to show our appreciation of the services of the secretary, Dr. Potter, who has done such magnificent work, in some appropriate way at this meeting. It has been suggested that a committee of two or three members be appointed to deal with the subject. I have had Dr. Potter invited from the room, so that he would not be here when this matter was brought up. I feel strongly about it. I feel that this Association has been of immense value to me and to us all. It has not been a mutual admiration society. It has helped to lift us up, and I think it would only be a gracious act on our part to take some cognizance of the secretary's services at this session.

THE PRESIDENT: I believe most of the Fellows will be in sympathy with the suggestion of Dr. Ross and, therefore, I will appoint Dr. Ross and Dr. Hayd as a committee to deal with the topic and ask the Fellows to subscribe whatever the committee decides is best. I believe this will be a graceful tribute to one who has served us so magnificently for the past twenty years.

Papers were then read as follows:

1. "Observations and Reflections on the Etiology of Gallstone Diseases," by Dr. Hugo O. Pantzer, Indianapolis.

This paper was discussed by Drs. Morris, Lyons, Ross, Baldwin Price, Humiston, Bonifield, Elbrecht, and the discussion closed by the essayist.

2. "Tuberculosis of the Kidney, with Report of Operations in Some Advanced Cases," by Dr. Rufus B. Hal Cincinnati.

Discussed by Drs. Morris, Ill, Walker, Elbrecht, Price, Ross, Baldwin, and the discussion was then closed by the essayist.

3. "A Consideration of the Toxemia of Pregnancy as Observed by the Gynecologist," by Dr. Raleigh R. Huggins, Pittsburg.

This paper was discussed by Drs. Zinke, Price, Elbrecht, Humiston, and, in closing, by the essayist.

4. "Present Status of Puerperal Sapremia and Puerperal Sepsis," by Dr. John E. Cannaday, Hansford, W. Va.

Discussed by Drs. Jonas, Lyons, Elbrecht, Skeel, Ill, Morris, Ross, Price, Tate, and, in closing, by the essayist.

On motion, the Association then took a recess until 2:30 P.M.

Afternoon Session, 2:30 *o'Clock.*

The President in the Chair.

5. "End Results of Operations for the Cure of Prolapsus Uteri," by Dr. John W. Keefe, Providence.

The discussion was opened by Dr. Hayd, and continued by Drs. Pantzer, Jonas, Elbrecht, Hall, and, in closing, by the essayist.

6. "Phlebitis Following Abdominal Operations," by Dr. Orange G. Pfaff, Indianapolis.

Discussed by Drs. Hayd, Price, Baldwin, Keefe, Ill, Pantzer, and the discussion closed by the author of the paper.

7. "Formation of Artificial Vagina by Intestinal Transplantation," by Dr. James F. Baldwin, Columbus.

Discussed by Dr. Price, and, in closing, by the essayist.

8. "Some of the Causes of Painful Menstruation in Young Unmarried Women," by Dr. W. A. B. Sellman, Baltimore.

Discussed by Drs. Bertha Van Hoosen (by invitation), Price, Carstens, Pantzer, and, in closing, by the essayist.

9. "The Menstrual Function; Its Influence upon Chronic Inflammatory Conditions of the Appendix," by Dr. Francis Reder, St. Louis.

Discussed by Drs. Sellman, Baldwin, Lyons, Jonas, Hall, and the discussion was closed by the essayist.

10. "Lithopedion of Thirty-two Years' Standing, Successfully Removed from a Woman, Sixty-eight Years Old, with Exhibition of the Specimen," by Dr. Herman E. Hayd, Buffalo.

Discussed by Drs. Elbrecht, Jonas, Price, Zinke,and, in closing, by the essayist.

On motion, the Association then took a recess until 7:30 P.M.

Evening Session, 7:30 o'Clock.

The President in the Chair.

11. "Ophthalmia Neonatorum and Blindness: A Pathologic Anachronism," by Dr. F. Park Lewis, Buffalo, by invitation.

12. "Back to an Old Idea" (President's address—Vice-president Bonifield in the chair). By Dr. Robert T. Morris, New York City.

Discussed (at the request of the President) by Drs. Price, Hall, Carstens, and the discussion closed by Dr. Morris.

On motion a vote of thanks was extended to Dr. Lewis for his admirable address.

On motion, the Association took a recess until 9:30 Wednesday morning.

SECOND DAY—*Wednesday, September* 18, 1907.

Morning Session.—The Association was called to order at 9:30 by the President.

13. "Premature Interruption of Pregnancy," by Dr. John A. Lyons, Chicago.

Discussed by Drs. Humiston and Lyons.

14. "Typhoid Perforation and Its Surgical Treatment," by Dr. Joseph Price, Philadelphia.

Discussed by Drs. Morris, Hayd, Frederick, Lyons, Bonifield, Humiston, Zinke, Skeel, Vander Veer, Ross, Huggins, Sadlier, Hall, Pantzer, Hayd, and the discussion closed by Dr. Price.

Dr. O. H. Elbrecht, St. Louis, showed an apparatus for the application of Dr. Murphy's continuous rectal saline irrigations in private homes.

The apparatus was discussed by Drs. Van Hoosen and Baldwin.

On motion, the Association took a recess until 2:30 o'clock

Afternoon Session, 2:30 o'Clock.

The President in the Chair.

15. "Indications and Contraindications for Myomectomy and Hysterectomy in Uterine Fibromyomata," by Dr. James N. West, New York.

16. "Enucleation of Large Extramural Intraligamentary Uterine Myomata, with Report of Two Cases," by Dr. Henry Howitt, Guelph.

17. "Case of Subperitoneal Pelvic Fibroid Complicating a Four Months' Pregnancy; Hysterectomy; Enucleation of the Fibroid; Secondary Hemorrhage One Week After the Operation; Pelvic Abscess; Rectovaginal Fistula; Recovery," by Dr. E. Gustav Zinke, Cincinnati.

18. "Temporary Uretero-vaginal Fistula after Panhysterectomy for Fibroid of the Uterus," by Dr. Ernst Jonas, St. Louis.

19. "Operation for Fibroid During Pregnancy," by Dr. J. Henry Carstens, Detroit.

These papers were discussed in a group by Drs. Ill, Hall, Ross, Lyons, Hayd, Bonifield, and the discussion was closed by Drs. West, Howitt, Zinke, Jonas and Carstens.

Dr. Roland E. Skeel, Cleveland, presented the following preamble and resolution:

Whereas, The American Association of Obstetricians and Gynecologists listened with great interest to the address of Dr. F. Park Lewis, Chairman of the Committee on Ophthalmia Neonatorum, of the American Medical Association, the same being entitled, "Ophthalmia Neonatorum and Blindness; A Pathologic Anachronism";

Resolved, That this Association authorizes a committee of three members to be appointed by the president to consider this important subject, and to report during this session with recommendation as to the action to be taken.

On motion of Dr. Hayd, seconded by Dr. Hall, the resolution was adopted without division.

The President appointed on this committee Drs. Roland E. Skeel, O. H. Elbrecht, and Magnus A. Tate.

On motion, the Association took a recess until Thursday morning, 9:30 o'clock.

THIRD DAY—*Thursday, September* 19, 1907.

Morning Session.—The Association met at 9:30 with the President in the Chair.

20. "Intraabdominal Torsion of the Great Omentum, without Hernia," by Dr. Roland E. Skeel, Cleveland.

Discussed by Drs. Frederick, Morris, Ill, and, in closing, by the essayist.

21. "Nymphomania as a Cause of Excessive Venery," by Dr. C. C. Frederick, Buffalo.

Discussed by Drs. Sellman, Elbrecht, Linville, Lyons, Morris, and the discussion closed by the essayist.

22. "Conservative Medical Treatment of Salpingitis," by Dr. Edward J. Ill, Newark.

Discussed by Drs. Morris, Hayd, Humiston, Frederick, Sellman, Skeel, Cannaday, Elbrecht, and the discussion closed by the author of the paper.

23. "Consistency in Aseptic Surgical Technic," by Dr. James E. Sadlier, Poughkeepsie.

Discussed by Drs. Morris and Cannaday.

24. "Deciduoma Malignum," by Dr. Miles F. Porter, Fort Wayne.

Discussed by Drs. Lyons and Porter.

25. "An Unusually Large Dermoid Tumor of the Ovary," by Dr. William H. Humiston, Cleveland.

Discussed by Drs. Lyons, Morris, Longyear, Frederick, and, in closing, by the essayist.

On motion, the Association took a recess until 2:30 o'clock.

Afternoon Session, 2:30 o'Clock.

The President in the Chair.

26. "Echinococcus Cyst of the Liver, Successfully Operated on, with Exhibition of the Specimen," by Dr. Herman E. Hayd, Buffalo.

Discussed by Drs. Ill, Morris, and the discussion closed by the essayist.

Dr. R. E. Skeel, Cleveland, presented the following as the report of the committee appointed at a previous session:

Mr. President and Fellows of the Association:

Your Committee appointed to consider the question of ophthalmia neonatorum begs to make the following report:

Whereas, A committee has been appointed by the American Medical Association on legislative measures to prevent ophthalmia neonatorum, and

Whereas, It is recognized by this Association that this disease is preventable, and

Whereas, The Health Department of each State is the properly constituted authority for dealing with preventable and communicable diseases; therefore, be it

Resolved, That it is the expression of the sentiment of this Association that definite steps should be taken to secure the enactment of such laws in the various States as shall compel the use of proper measures of prophylaxis by the attendant at every confinement, the execution of such laws to be under the jurisdiction of the State Boards of Health, and we hereby pledge our assistance and cooperation to the Committee of the American Medical Association in its undertaking.

Signed: R. E. Skeel, O. H. Elbrecht, Magnus A. Tate. } *Committee.*

On motion of Dr. Longyear, seconded by several Fellows, the preamble and resolution were adopted.

27. "Nephrocolopexy, with Report of Cases," by Dr. Howard W. Longyear, Detroit.

The Secretary stated that it was always customary, in closing the sessions of the Association, to say something that should go on the records with reference to the character of the meeting, the entertainments, etc., and he therefore was directed by the Executive Council to offer the following resolutions, expressive of the feelings of the Fellows on this occasion.

Whereas, The American Association of Obstetricians and Gynecologists during its twentieth annual meeting, held in the City of Detroit, has received many courtesies at the hands of the Committee of Arrangements, composed of Dr. J. Henry Carstens, Chairman, and his associates, Drs. H. W. Longyear and Walter P. Manton, therefore, be it

Resolved, That the thanks of the Association be and are hereby tendered to the Committee of Arrangements for the very pleasant and efficient manner in which they have prepared for our comfort, physically and mentally.

Resolved, That the thanks of the Association be and are hereby tendered to the proprietors of the Hotel Cadillac for the delightful banquet given last evening.

Resolved, That the thanks of the American Association of Obstetricians and Gynecologists be and are hereby tendered to Messrs. Parke, Davis & Co., of Detroit, for the splendid opportunity extended to the Association to visit and inspect their biologic laboratories and for their generous entertainment at luncheon. All the members regard it as an occasion long to be remembered by reason of its scientific, instructive and social features, and desire to place this expression of appreciation on record.

On motion of the Secretary, duly seconded, the resolutions were adopted unanimously.

The retiring President, Dr. Morris, appointed Drs. Ill and Lyons to escort the newly-elected President, Dr. Zinke, to the platform.

Dr. Zinke was warmly received.

Dr. Morris, in introducing his successor, said: "It is my pleasure to turn over the responsibilities of this office to one who will assume them and carry them out with more energy, more interest, than I have done, and let us hope that during the next year the Fellows will become so interested in the program that the meet-

ing will be more interesting than this one and bring out the largest attendance we ever had. (Applause.)

Dr. Zinke, in accepting the presidency, said: "Fellows of the Association.—All I can say to you is that I am not only deeply appreciative of the honor bestowed upon me, but, at the same time, I realize the great responsibility that goes with this office. If promises amount to anything, I can make a promise now which I hope I can redeem or fulfil some time; but nothing shall be left undone, so far as I am concerned, to make the next meeting as successful and interesting as this one has been. I shall try still more to outdo all previous efforts of my predecessors, though I fear that I may not be able to do so, but my prayer shall be that I shall succeed to the honor and credit of the Association rather than myself.

As the next place of meeting is Baltimore, if the work that we shall perform there shall receive the endorsement of members of our profession, I think it is all we can expect to earn, and all that we shall be able to achieve.

I am not prepared to make a lengthy speech, and in thanking you once more for conferring this distinguished honor, I pledge you to do my very best. (Applause.)

Dr. John A. Lyons moved that the thanks of the Association be extended to the retiring President, Dr. Morris, for the courteous and able manner in which he had presided over the deliberations of the Association.

This motion was seconded by several and carried unanimously.

On motion, the Association then adjourned.

WILLIAM WARREN POTTER.
Secretary.

EXECUTIVE SESSIONS.

Tuesday, September 17, 1907.

The President, Dr. Robert T. Morris, in the Chair.

On behalf of the Executive Council, the Secretary presented a list of applicants for Fellowship, after which the Association elected by ballot the following-named candidates:

John M. Bell	Detroit, Mich.
Henry O. Walker	" "
Douglas C. Moriarta	Saratoga Springs, N. Y.
Ingersoll Olmsted	Hamilton, Ontario
Ramon Guiteras	New York, N. Y.

Ap Morgan Vance	Louisville, Ky.
Edward A. Weiss	Pittsburg, Pa.
Charles G. Ziegler	" "

The Secretary presented the accounts of the Secretary and of the Treasurer, and asked for the appointment of an Auditing Committee.

The President appointed as Auditing Committee, Drs. W. A. B. Sellman and Wm. H. Humiston.

Adjourned.

Wednesday, September 18, 1907.

The Executive Session was called to order by the President, immediately after the adjournment of the scientific session.

Dr. Ross, on behalf of the Committee appointed by the President to take some recognition of the services rendered to the Association during the last twenty years by the Secretary, Dr. William Warren Potter, presented the following report:

Mr. President and Fellows: Your Committee begs to report as follows: Twenty years have flown into the unreturning past since this vigorous Association was ushered into being by the touch of the magic wand in the hands of Dr. William Warren Potter. Here and there throughout the land active, progressive, aggressive young men were sought out, and were banded together to carry on the study of the varying, complicated and undeveloped problems met with in the daily routine life of the obstetrician and the gynecologist. For twenty golden years full of rich rewards these men or many of them have received valuable encouragement from our industrious and enthusiastic Secretary, and even advancing years have made no inroads on his unfailing courtesy. We have plodded on together in troublous times, have seen him rise from a sick bed to carry out our behests, have known him leave sick ones at home to fulfil his duties in this organization, that lies so near his heart.

Though the hand of the ever-present reaper has fallen heavily upon his esteemed family, we are thankful that he has those about him to whom the traditions of the past may well descend, and it is the wish of the Fellows of this Association that Dr. Potter be herewith presented with a gold watch fittingly inscribed as a small token of our affectionate regard.

The duties of secretary of this active and progressive society have been onerous, but kindly Time has dealt lightly with our

friend, and this presentation must by no means be looked upon as a leave-taking, but merely as a memorable milestone on the sands.

We trust most sincerely that our worthy Secretary may be preserved for years to come to participate in the joys of life, and to soothe the sorrows of many persons who may look to him for professional and other advice.

Signed: HERMAN E. HAYD, JAMES F. W. ROSS } *Committee.*

Dr. Potter, in accepting the gift, said:

Mr. President and Fellows: This has so utterly surprised me that I really find myself paralyzed so far as speech is concerned. I wish, however, to express my grateful thanks for the appreciation conyeved in the communication just read of whatever service I may have rendered the Association during the twenty years of its existence. I wish I could find words to express not only my gratitude for the affection that has been manifested toward me, but for the courtesies and kindnesses that I have received from time to time from every Fellow of the Association, but I cannot now trust myself to do so. Gentlemen, I hope you will take these few inadequate expressions as coming from a grateful heart, for more than they really appear to mean in the words themselves. I am so overwhelmed that I cannot say any more on this occasion. I thank you all very, very much. (Loud applause.)

The Secretary said that two important topics to be considered by the Association were the place and time of meeting, and moved that these questions be taken up at once.

This motion was seconded by several, and carried.

The Secretary then said that he had received the usual standing invitations to meet at Put-in-Bay, Ohio, and Asbury Park, N. J. (Laughter.)

After considerable discussion as to the place of meeting, it was moved by Dr. Lyons, duly seconded, that the next meeting be held at Pittsburg.

Dr. Sellman moved to substitute Baltimore for Pittsburg. The substitute was seconded and carried.

On motion of Dr. James N. West, the time for holding the next meeting was fixed for September 22, 23, and 24, 1908.

The election of officers being the next order, Dr. Charles L. Bonifield nominated Dr. Potter for President of the Association, saying that the Association would honor itself by honoring him

The nomination was received with great applause.

Dr. Potter said he was extremely grateful for this apparently unanimous expression of opinion, but it was utterly impossible for him to consider the honor at this time, and he certainly hoped it would not be pressed to a conclusion. It would please him very much under other circumstances to preside over the deliberations of the Association; but his heart had been in the work for so many years, that he felt suited to detail work, and he was not gifted with that kind of executive ability required to preside over such a distinguished body. He said he had had the confidence of all the presidents of the Association so far, and rather than disturb what he thought would be to the best interest of the Association and the condition which was so aptly expressed by the unanimous feeling of good fellowship shown on all sides, he hoped the Fellows would permit him to decline absolutely the proffered honor. (Applause.)

Dr. Hayd said he was very sorry that Dr. Potter did not feel willing to accept the honor of the presidency of the Association. The election of officers was then proceeded with, resulting as follows:

President, Dr. E. Gustav Zinke, Cincinnati; *Vice-presidents*, Dr. John W. Keefe, Providence, and Dr. William A. B. Sellman, Baltimore; *Secretary*, Dr. William Warren Potter, Buffalo (re-elected); *Treasurer*, Dr. X. O. Werder, Pittsburg (re-elected); *Members of Council* to fill expiring terms: Dr. Robert T. Morris, New York; Dr. Wm. H. Humiston, Cleveland.

The Auditing Committee reported having examined the accounts of the Secretary and Treasurer, and having found them correct, with a balance of $105.05 in the treasury.

On motion, the report was adopted.

Drs. Bonifield and Hayd were appointed to escort the newly-elected president to the chair.

President Zinke said: I assure you that this is the greatest and most pleasant surprise that I have had in a long and toilful life that lies behind me. There is not, so far as my memory goes, a single moment of the past that has not been occupied by some useful work. I am free to confess that it was a matter of necessity in the beginning, but later it became a pleasure to me to work. I still feel that I have the elements of youth within me, although with advancing years we occasionally feel that our tasks become a little more arduous from year to year; but when we come together and receive new ideas and take on renewed energy as at these meetings, we go home and begin our work

with renewed strength, and certainly with renewed life, and while there was a time in my life when I bewailed the fact that I was obliged to work so hard, it now has become evident to me that, after all, the real joy of life can only be obtained through good and honest labor. (Applause.)

On motion of Dr. Lyons the Executive Session then adjourned without day.

WILLIAM WARREN POTTER,
Secretary.

PAPERS

READ AT THE

TWENTIETH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

HELD AT THE

CADILLAC HOTEL

Detroit, Mich.

SEPTEMBER 17, 18 and 19, 1907.

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THE PRESIDENT'S ADDRESS

BACK TO AN OLD IDEA, FOR IT INTRODUCES A NEW PRINCIPLE IN SURGERY.

BY
ROBERT T. MORRIS, M.D.,
New York.

ABOUT the middle of the last century a number of surgeons were calling attention to the desirability of rapid operating, and promulgating the idea that patients recovered more quickly when the attack of surgery had been of short duration.

The idea was based upon ordinary observation, rather than upon science. at that time.

Into the field came Pasteur, Semmelweiss, Lister. The attention of the whole surgical world was diverted toward questions of antisepsis and of asepsis. The patient himself was forgotten in our skilled maneuvers against the bacterium. Tait stood out alone upon the plain in the midst of the whirlwind, and his statistics were too good to be generally accepted. He stood upon his *ipse dixit* rather than upon a basis of scientific explanation, which to-day can be given.

The dominant idea became that of preventing nature from growing her favorite colonies of bacteria at our expense; and we were to accomplish the task by our artifices. That is the dominant idea right now. It is crude and incomplete, and is shortly to be rounded out by the idea of conserving the natural immunity of the patient, and of holding his opsonic index up, even as the hands of Moses were held up. The patient himself is to be our best ally, and in our pride of achievement with artifices against the bacterium, we are not much longer to disregard such an ally as nature gives us in the patient.

That takes us back to the old idea of the middle of the last century, but it introduces a new principle which can be stated in terms of classified knowledge—something which could not have been done at the time when the old idea was in practical application.

The surgical patient is a factory. The business of the factory is the manufacture of opsonins for disabling bacteria, and of phagocytes for destroying them. Our new idea is to stop disturbing this factory with surgical methods which interfere with its output of opsonins and phagocytes.

How are we to do this? By avoiding long debauch with intoxicating anesthetics. By not choosing, for patients who are to be saved, a type of incision that is popular for killing bears. By not allowing the patient to be bitten to death by a pack of snapping artery forceps. By disturbing as little as possible viscera which ring up the central stations of the sympathetic ganglia whenever they are touched. By not wasting the patient's vital energy through unnecessary detail in conscientiously carrying out perfected technique. The cap of the climax of the dominant idea was the introduction of the rubber glove. This last refinement of our art intensified the worst features of our methods. This last foot of ice upon the Antarctic pole is to overset our earth and change its axis of rotation.

I often say to the physician of a patient: "Now do you wish me to do an ideal operation, or would you rather have me save your patient?" It seems to me that the most important single feature in helping the business of the factory is rapid operating. Not hurried work, but expeditious completion of necessary steps, and to this point I will devote the chief part of my address.

In Philadelphia two surgeons of about the same capabilities have different statistics. A house surgeon serving under both was asked the reason for the difference in statistics and his reply was "about ten minutes."

I asked one of our professional anesthetists who works with from two to ten surgeons a day, what, in his opinion, was the most common fault among surgeons. His answer was, "Puttering and unnecessary attention to detail in technique." On that same afternoon, working with another anesthetist, I quoted the first one, and asked if he agreed. He said, "Precisely; there are surgeons for whom I will not work, and I am engaged when they call for me. I have seen patients' chances for recovery lessened and have seen patients killed outright, in cases in which they could easily enough have recovered."

I wrote to two other professional anesthetists on the point. One of them replied: "I have observed beyond all question that patients do best when the surgeons do quick and, particularly, gentle work. These patients rarely have shock, and they recover

easily from the effects of the anesthetic." The other answer was: "I certainly do believe that not only are the patient's chances for recovery lessened in certain cases, but whatever chances they had were lost." The public knows nothing of this sort of thing, and very many physicians are unfamiliar with its meaning. How is it that surgeons have come to this sort of criticism on the part of men who are generally recognized as competent to criticise? It is through conscientious perfection of art which leaves the patient out of the structure. The play proceeds while Hamlet is too ill to be present. It was the introduction of anesthesia that first brought about a change to methods which were better for the patient in one way and worse in another way. The law of compensation worked out there as it does in most other fields of human activity. Men who had worked rapidly because of compassion alone adopted slower methods after the introduction of anesthesia, and sometimes became so deliberate in their movements that the patient was injured without the surgeon's cognizance of the situation. Then came our study of the bacterium, and that still further opened up vistas of observation which left the patient out of the horizon.

It was during the middle of the last century that the fine idea of rapid operating started to grow into an imposing feature of the landscape, but it was blown down before reaching prime by anesthesia and by antisepsis. Now it will sprout from the stump again. Among the very earliest writers, the ancient writers, there is no reference to rapid operating. Their works were mostly didactic and for novices, and not for trained men. To have counseled rapidity of operating would have entailed too much responsibility, and tyros would have been tempted to place speed before other requisites perhaps. The relationship between the duration of an operation and the degree of shock is essentially a modern discovery. I have been surprised in looking over the literature of the subject to observe how modern a discovery it is, and how essentially English and American it is in its development.

The old Romans made no reference to the matter of rapidity of operating. They divided surgeons into the Vulnerarius who treated wounds with dressings, and the Carnifex who operated for stone and hernia. The Carnifex was barely tolerated by the Romans. The Greeks at that time could not do much operative surgery because they did not understand the ligation of arteries. Celsus is the first writer to the point, and he is opposed to rapid work, saying that the surgeon must not have compassion which

will lead him to hurry. Celsus bears merely upon the point of "hurry" to condemn it, and most of us to-day will agree with that particular feature. There is a distinct difference to be made between hurry and safe rapidity.

Ambrose Paré, in the sixteenth century, speaks of rapidity. He defines surgery as "a quick motion of an intrepid hand, joined with experience."

The next great writer is Heister, in the seventeenth century. He quotes Celsus with approval and states that the operator "should use expedition, but not hurry."

Coming to the English school, Sir Astley Cooper does not mention rapidity, and states that self-possession and knowledge of anatomy are of first importance. Sir Robert Liston praises skill, caution, dexterity, adroitness, and tempered boldness, but does not refer to time spent in operating.

A number of contemporary teachers such as Bell, Lizars, and others do not go into the matter of qualifications and requisites at all.

Velpeau's great work contains no reference to time saving, excepting when syncope (shock?) sets in, and he says that it may then be necessary to complete an operation quickly, or to finish it at a second stage.

Just after the introduction of anesthesia Skey awoke to the fact that shock might be inseparable from any operation, and that the duration of operations on anesthetized patients was introducing an element of danger, "for the duration may exceed the endurance of the patient."

Henry H. Smith goes out of his way to condemn rapidity *per se,* and believes that the day of rapid surgery is happily past. He does say, however: "Safely at all events, quickly if you can."

Morand, a Paris surgeon, wrote a short article in 1772 on the subject of the old adage, "Tuto, cito, jucundo," and said that it applied to surgery quite as well as to medicine. "One should operate safely, quickly, and pleasantly." Bardeleben, in 1874, expresses the idea of Morand as though it were his own. The surgeons of the past century did not, as a rule, deal with the conduct of operations in general in such a way as to bring out the matter of rapidity of operating for the sake of preserving the patient's strength, but Bardeleben, in the seventh edition of his work (1874) says that "safety is the first consideration, but rapidity is a goal to be aimed at, and is sometimes indispensable.

Cases occur in which protracted pain can lead to death, quite as well as does loss of blood. Rapidity need not be the same in all stages of operating." Elsewhere he again states that prolonged duration of operation may lead to exhaustion of the patient. He does not mention shock, but speaks of syncope, which would probably be held to mean about the same thing to-day.

Treves, in his "Operative Surgery" (1892), gives pictures of the rapid operator of the past, conceiving him in the light of a player to the gallery, and giving him no credit at all for trying to preserve the patient's energy. He makes light of dexterity in surgery, as compared with the dexterity of the artisan, and says that "the days of brilliancy are past."

In this connection I would say that some of us who are interested in brilliantly preserving the natural immunity of the patient—holding it on a par with the principle of chemically and mechanically attacking bacteria—are just now being charged with playing to the gallery. I hear the work of certain colleagues referred to in this way, and presume that my own ideas naturally meet the same sort of reception. It is my feeling that other operators who try to work rapidly do so with no intention of gaining personal *éclat,* for the matter does not really work out in that way at the present day. Certainly not to the point of substantial recognition. There is something else back of the motive which led physicians and surgeons in the past to make enthusiastic audiences for particularly rapid operators. It must have been that the audiences recognized some fundamental benefit for the patient; because underlying all of our professional feeling is the basic desire to see the sufferer helped—*Res est sacra miser.*

I believe that the attitude of a conservative profession toward new ideas is legitimate and commendable. It is our only protection against the introduction of a multitude of fanciful and harmful theories, that are foisted upon us daily by earnest advocates of unwise plans and of imperfectly constructed methods. We are eager enough to accept new ideas when they are properly presented, and in a way to appeal to the reason; but we are all so busy in carrying out established ways for doing good that it is difficult to take time for a new stand and for comprehending a new principle. The bias shown by Treves and by Henry H. Smith toward rapid operators gives me the impression that they probably had in mind certain colleagues who won more or less applause for their ways of working.

Up to about forty years ago operative shock had no literature.

but during the latter part of the last century a great many writers took up the subject. For the most part they describe shock as due to a multitude of personal and external factors, rather than to the direct effects of operative work. The latter effects were spoken of as "exhaustion." Exhaustion, not shock, was relative to the duration of an operation, according to most of the writers of the middle of the last century.

I am fully agreed with the ancient and modern writers who argue against hurry in operating, but we must cultivate as far as possible a rapidity of action which will make every move count, and which will allow the average abdominal operation, for instance, to be completed in about fifteen minutes. Get in and get out! Personally I have not been able to do stomach and bowel resections or complete breast amputations in much less than thirty minutes, but appendicitis operations, in cases with many complications, are frequently completed in five minutes. We must drop many of the details of our beautifully constructed technique, which has for its object the removal or the destruction of bacteria, and we must come to know the face value at least of the natural immunity of the patient. We must conserve that immunity and not sacrifice it upon the altar of our art. Dawbarn poured milk, representing pus, into the abdominal cavity of a cadaver, and then set to work to determine how to get it all out. After a degree of incising, sponging, and flushing, sufficient to kill a bear, there was still plenty of milk left. How are we to read that object lesson? By perfecting methods for getting that milk out? Oh, no! That would be in accordance with the dominant idea in surgery at the present moment, but it would be all wrong. The right way is to leave the patient in condition to take care of the milk himself. My own method would be to quickly open the peritoneal cavity with a pair of scissors, turn out the appendix and whatever pus happened to be close at hand, and put in a little wick drain. If pus flowed over normal peritoneum, exposed by the separation of adhesions, I would leave it, and expect that as an albuminous fluid it would furnish a certain amount of nutrition for the patient, even though its mercaptans and sulphur ethers smelled like very dangerous material. Fifteen years ago I would have stood aghast at the mention of any such treatment. It would be subversive of all that I learned of wound treatment in expensive trips to Europe. Who taught us this new lesson? The physician who did not believe in operating for appendicitis. His attitude was immoral, and when asked to

defend himself he always ran away and hid behind bad surgeons, but he was of service to the profession because he taught us a lesson at the patient's expense. How did some patients with pus in the peritoneal cavity recover? Precisely as they do regularly after a quick and unideal operation. The only difference is this. In one case the patient fights it out all alone and unaided, and in the other case we step in and turn the tide of battle between phagocytes and bacteria. That is the principle—turning the tide of battle and letting the patient annihilate a running enemy with a rear fire of opsonins and phagocytes. By the popular method of sponging, and flushing, and filling the patient with gauze—committing taxidermy upon him—we fire directly into the ranks of our ally and disable him at the start. The only pus that I would leave in sight in quantity is the pus of protective staphylococcus albus infection, but a search for all of the pus in the peritoneal cavity ends like the search of the man who suspected the presence of a leak in the gasoline barrel in the cellar and who went down with a candle to look for it.

I believe that under the new principle of conserving the natural immunity of the patient we can get our death rate in appendicitis down to a fraction of one per cent.; taking all cases as they come, refusing help to none, and operating upon all who are still breathing when we get to the house. Hotchkiss, in the *Medical News* for July 2, 1904, states that at one of his hospitals, where many emergency cases of appendicitis are received, the operative death rate for a series of years, under accepted methods of to-day, was 30 per cent. Hotchkiss then changed to methods which conserve the natural immunity of the patient, but which are not as yet acceptable to the profession, and there was no death rate at all in his next seventy-two consecutive operations for appendicitis, although the cases were of the same sort as those which had previously given a death rate of 30 per cent. Just stop and think of that for a minute! After dropping it out of mind, think of it again. Every once in a little while let it come back into mind. The secretary of the Standard Oil Company told me that one of the most important things in this world was to know a good thing when we saw it. Is it necessary for one to quote such authority to doctors? Apparently! I know of other statistics quite like those of Hotchkiss, properly recorded, and available for all who wish them. The one example will suffice. Once in awhile we will have an appendicitis patient with mesenteric thrombosis, or with pylephlebitis, or with such violent peritonitis that we must

lose him, but the proportion of such cases is trifling. One gets to feel that it is well nigh impossible to lose any sort of an appendicitis case, provided that accepted methods of treatment are dropped.

For the last thirty or forty years we have tried so conscientiously and so scientifically to help the patient by following up his bacteria that we ran past the patient himself altogether. With our eyes upon the heavens, we have fallen over a fact upon the ground—a fact that was known to our teachers of earlier days. Now we must go back to the old idea of rapid operating, with its collateral features, because, by synecdoche, it stands for conserving the natural immunity of the patient. The first stage of surgery was heroic, the second was anatomic, the third was pathologic, and we are now about to enter upon the fourth or physiologic stage of surgery. Immunity is to be the watchword of the day, in surgery as well as in medicine. During the past thirty or forty years we forged far ahead of the internists, for our science was better than theirs. Now they are quietly slipping up to us, for their science is getting to be more comprehensive than ours. What, ho, watchman!

DISCUSSION.

Dr. Morris expressed a desire to have his address discussed. A motion was made and carried that this be done, and Dr. Joseph Price was asked to open the discussion. He said:

Our President, Dr. Morris, has taken up some very important points. It is not my habit to disagree with him as to rapidity in surgical work. According to what he has said, the ancient operators were in favor of slow or sluggish methods in surgical work. Three of the citations given came from such valuable sources that we must accept them because they are authoritative. But we know very well that in preantiseptic and preanesthetic days surgeons worked quickly. Many of us had opportunities of seeing surgeons work in preanesthetic days, and we very well know that it was very vital and essential that they did work quickly. They had to do so. The surgeons in those days had the reputation of being heartless, cruel, and brutal men, but such statements we know now to be false and untruthful. The fact that they did their work rapidly and dexterously was due to the further fact that mother, father, son and daughter held legs and heads and extremities while the surgeon passed the knife around an arm or leg rapidly and used the saw quickly. I remember as a boy seeing two legs amputated, one in Virginia by Dr. Hinkle, a graduate of the University of Pennsylvania, who operated near

a barn in the sunlight, following a threshing machine accident. He made rapid cuts, sawed the bone off quickly, and secured the large vessels with tenacula and tied them. The work was very rapidly done. The next operation I saw at the age of ten, which was performed by Nathan R. Smith on my own brother, also a threshing machine accident. He had driven thirteen miles in one hour on a Kentucky horse that was given to him by the Kentucky doctors that were present. He pulled the boy to the edge of the bed, and with an instrument, lying on the adjoining table, without a single antiseptic precaution, without even washing his hands after that long drive, simply throwing off his coat and rolling up his sleeves, made a plunge, making two or three rapid cuts, and then calling for his saw—"Sam, the saw; damn it, Sam, the saw"—after which he began to saw the bone. It was a brilliant operation, well done, and accomplished in less than a minute and a half. This was the second operation I ever saw in surgery, the first having been done by a graduate of the University of Pennsylvania, as I have said, and the other by the great Nathan R. Smith. Both patients recovered without a ripple, and I think without "laudable pus." (Laughter.)

Early in my boy life I had an opportunity of seeing a number of surgeons operate. I saw Nathan R. Smith operate in his hospital in Baltimore. All of his operations were done rapidly. The operations which were performed in Philadelphia hospitals many, many years ago, by Agnew and Levis, were done rapidly. Agnew's stone operations were all done within a few minutes. I have repeatedly criticized the influence of anesthesia over the modern surgeon. But modern surgery in many instances, as our distinguished President has pointed out, has furnished us object lessons. The old-time operators were also good teachers. We have had much to establish. We have had to establish pathology, diagnosis, and a great many other things in surgery. In those ancient days amputations were performed rapidly; occasionally hernias were operated on, and tracheotomies done, and occasionally trephining. But most of the ancient surgeons were bad dermatologists. They lived, as it were, on the surface, and at that time had not invaded the cavities of the body. To-day we do heart surgery for stab and gunshot wounds, with only 50 per cent. mortality, and I believe even this mortality will be materially decreased in the future. Our mortality now in all abdominal work is very nearly *nil,* notwithstanding the fact that patients are used in large numbers for object lessons.

I am sure this address will do me lots of good, and I shall hereafter probably change my methods. At any rate, it will do very much good.

I remarked to-day that were I a teacher in a public hospital I would use the Trendelenburg position, and that would expose pathology, and I would not close the abdomen without removing the pathology, as is a common practice with some surgeons. I used to say that dirty surgery during preantiseptic days was acute

surgery, and during anesthetic days chronic surgery. Nothing has ever pained me more or given me more chagrin in a surgeon's work than to see two or three patients anesthetized, waiting to be operated on, and then, after prolonged operations, be transported through cold hospital corridors and run rapidly through elevator shafts. Keith complained that the pulse of his patients disappeared on their way back to the ward of the Royal Infirmary at Edinburgh.

I remember once going to the Zoological Garden in Birmingham with Mr. Tait to see a Ceylonese exhibition, and among other things a juggler came out, sat down on a board, and some one handed him a couple of eggs; he put one in each ear, and then both came out of his mouth. (Laughter.) Tait said to me: "Price, that is the way we ought to do surgery." (Laughter.) I have often said that surgeons should be Ceylonese jugglers, and I do not know of any good reason why we should not be, except we have not inherited these tricks as the Ceylonese jugglers have, because in Ceylon they are handed down to the children from generation to generation. We inherit nothing. We went through medical colleges as students without being taught how to do a single intestinal suture; and yet all of us talk about the wonderful advancement we have made. We have had to reeducate ourselves. The modern medical student gets his education out of a gold punch bowl as compared with the education we received. Our schools still neglect to give this practical education. Aside from a few schools, many of our larger hospitals are closed for educational purposes. It is thought by some of the officials of hospitals that patients should not be used for educational purposes. Aside from policlinics, the private institution has been the educational institution of the world. Beginning at New Orleans, in Kentucky, and Alabama, and going on through the great schools, all the specialists and pioneers in specialties, like Sims and McDowell, have been teachers. That grand old school of plastic surgery in the City of New York has distributed specialists all over this land; men who have established private teaching institutions. It was these private teaching institutions that gave us our specialists; they were instrumental in giving us clean hospitals, and much that is valuable in surgery at present. I have expressed the opinion that every hospital in the land should be a school, and not for one or two resident physicians. The resident physicians should be quadrupled, and these institutions ought to be made schools in diagnosis, pathology, and surgery. Rapid, skilful surgery will enable us to reduce the mortality very materially, and in some intra-abdominal conditions bring it down almost to nothing. But in order to do this we must educate the internist. He must be equally rapid in his knowledge of pathology and diagnosis and send patients to us quickly.

The hospitals of our country are not doing work along the line of apprenticeship that they should do. I feel that a graduate

ought not to practise medicine who has not served in a hospital for a year. (Applause.) I have frequently spoken of the Pennsylvania system of rotating resident physicians in hospitals. Western hospitals are at fault in not rotating their residents. They are not giving the resident physicians the clinical apprenticeship that they should receive. By this system, early in his experience, the resident physician serves in the ambulance service. After he learns to tie arteries he attends accident cases and those attended with mutilations. He knows how to manage them primarily. He serves six months in the men's medical ward and six months in the women's medical ward; also six months in the men's surgical ward and six months in the women's surgical ward, which enables him to become a fairly good practitioner. In Chicago, or in the Western hospitals, the resident physician is simply an internist to the internists. He is an interne to the surgeons. The paid system should be abolished. I hope there will be a rebellion among graduates and hospital internes, who will kick against the paid assistant surgeon walking into the hospital and displacing the resident. That resident has a right to claim his apprenticeship on the opposite side of the table. I go to six or ten hospitals in Philadelphia to operate and never think of taking an assistant with me. I believe in having the hospital residents help me; but they must follow my instructions in preparing themselves to aid me in my surgical work.

Dr. Rufus B. Hall, Cincinnati.—I was very much interested in the President's address and enjoyed it very much. I believe it will do great good. I was likewise interested in the remarks of the last speaker. I rise, however, to speak in opposition to one thing mentioned in the address. If I understood Dr. Morris correctly, he is in error when he said that we should ignore details, for instance, inside of the abdomen in order to shorten the operation. Taking intraabdominal conditions as we see them, I believe that would be a grave error. I cannot conceive how, taking one case with another, we can afford to neglect details in our intraabdominal surgical work for the sake of saving a few minutes. In an ordinary case, under aseptic conditions, some exceptions might be made. That one point I would like to have him explain more fully, and under what circumstances he would neglect details in intraabdominal toilet for the sake of saving a few minutes' time.

Dr. J. Henry Carstens, Detroit.—Some years ago I talked on this same subject. A gentleman read a very elaborate paper before the Mississippi Valley Medical Association on "How to Develop Surgeons." He pointed out what education they ought to have; how much Latin they ought to know; how much Greek they ought to study, and how many languages they should acquire a knowledge of, and so he kept on enumerating the qualifications of a surgeon. Furthermore, after graduating from a medical college, he said the practitioner should take courses in the best post-graduate school, and even go to Europe. He

should also serve an interneship in some hospital, and in this way we would develop good surgeons. In the discussion I said that he had forgotten one very important, and which I regarded as the principal, thing—namely, a fine Italian hand. I must say a word or two about that. Medical students sit on benches year after year; they read and study diligently, but they never develop deftness of hand. And that is an important point. In order to make a good surgeon, a nimble surgeon, the hand has got to be developed from youth. To make good surgeons, quick workers, you must start with them when they are children. They have got to learn to make baseballs, baseball clubs, little hatchets, and such things; they must know how to use the hammer and screw, how to cut, and how to use the chisel, and do all kinds of things in order to develop nimbleness of the hands. After they have acquired this deftness of hand, then they can enter a medical college, where they can be drilled in operative surgery and trained to perform all kinds of operations on the cadaver and do them quickly. It is the medical colleges that have got to help us to make these good surgeons. To do that, they have to put these men in our hospitals and train them; rotate them, as Dr. Price has said, from one hospital to the other, and in this way we will be able to get good surgeons. But whenever we see a man, who has a hand like an elephant's foot, who has not acquired manual dexterity, try to operate on a patient, as I saw one the other day, who consumed three and a half hours in doing a trivial operation—namely, in trying to find the appendix, it is not a pleasant sight, because we know men of skill can do such an operation in eight minutes and close the abdomen. Such men ought not to practise surgery. There are two kinds of men—there are surgeons and there are operators.

Dr. Morris (closing the discussion).—Dr. Price believes in removing pathology. Sometimes the pathology and the patient are inseparable, and that brings us to the point brought up by Dr. Hall about ignoring details. I recall in this connection one of the most important object lessons that I have ever seen or known about. Dr. Dawbarn, one of our prominent surgeons, whom most of you know, wanted to know about how much sponging, wiping, and flushing were required for getting pus out of the peritoneal cavity. He injected a quart of milk into the peritoneal cavity of a cadaver, manipulated things well, and then set to work to get that milk out. He found, after making a very extensive incision, and doing a great deal of wiping and a great deal of flushing, that there was still a lot of milk left in the peritoneal cavity. His conclusion was that we had better make a very large incision and do a great deal of wiping, sponging, and flushing, and get out all the pus we can. Now, my conclusion is that we had better leave the whole business alone and let the patient get it out. He can do it better than we can. That is a new principle.

Another object lesson bearing upon the point is this: physicians

who do not favor operating very much in appendicitis tell us that they save a great many patients who have pus in the peritoneal cavity, abscesses, etc., but those patients have a rough road to travel. They suffer from adhesions; they have complications which make them invalids for life. The death rate is large, but we must not forget the fact that these practitioners save some patients without operation where there is pus in the peritoneal cavity. How is this done? We know to-day how it is done. These patients care for pus with their phagocytes and opsonins, and we must not shut our eyes to the fact that physicians who do not believe in operating for appendicitis sometimes save patients with pus in the peritoneal cavity. We have to face that fact, and we have an explanation for it. It is in the method of treatment I advise, but it would be dangerous to publish my statement perhaps. I am not talking, however, to a lot of students or undergraduates. We must recognize the fact that another object lesson is this: Dr. L. W. Hotchkiss, New York, recently published in the *Medical News* a statement that at one of the hospitals with which he was connected, where emergency cases are brought in, the death rate from appendicitis for a series of years, according to the accepted methods of to-day, was 30 per cent. Remember, these were emergency cases; but since adopting the new principle which I have advocated, he had had 76 consecutive operations in a class of cases in which they formerly lost 30 per cent., without losing a patient. That is worth thinking about. When Dr. Hotchkiss says that he has had 76 consecutive patients upon whom he has operated without a death in a class of cases in which he lost formerly 30 per cent., we have got to stop and listen.

Dr. Hall asks about ignoring details. The matter of ignoring the detail of getting the milk or pus all out of the peritoneal cavity is an important one. I ignore that detail. A long incision is selected for the purpose of killing bears, and we choose for weak and disabled patients the same method that is in common use for disabling bears.

Another point, as a further answer to Dr. Hall's question: I have seen a good deal of distress caused by puttering over hemorrhage from adhesions. The hemorrhage from adhesions would keep on just as long as the surgeon kept on fussing away, trying to pick up one point and another. I have seen operators fussing over these things for an hour, when the whole operation could have been done in ten minutes, and the oozing from these adhesions would have stopped before he got through with his operation. It would have stopped in nine minutes during a ten-minute operation. This is a matter where experience and judgment are required, and Dr. Hall with his judgment and experience can ignore such details. It should be borne in mind that I am not speaking to an audience of undergraduates. I would not dare say the things I am saying here to undergraduate students. They would not understand what we were talking about,

and if they went into practice and carried the idea of rapid operating and small incisions into their first surgical work, many of their patients would die, and they would become disgusted and the results generally would be bad. I am talking to experienced men. I know my audience, and the things I say in connection with this new principle, which I believe has become a dominant principle, can be said to-day only to experienced men.

Another object lesson: if we remove an ovary, the patient has less disturbance than if we remove an ovary and a tube. If we remove an ovary and a tube, the patient has less disturbance than if we remove an ovary, a tube and uterus. If we remove an ovary, a tube, and uterus, the patient has less disturbance than if we proceed and also remove the appendix. This is an observation that must be common to all of you, and if it is recognized at its face value and carried to its logical conclusion, we can apply the principle to all of our work. These are the essential points which have occurred to me during the course of this discussion.

OBSERVATIONS AND REFLECTIONS ON GALLSTONE DISEASES.

BY

HUGO O. PANTZER, M D.

Indianapolis.

THE study of the clinical significance of gall-bladder pathology to-day stands in the medical foreground. Recent developments have shown that the gall-bladder rates second only to the appendix among the abdominal organs in their disposition to take on disease. Like the appendix, the gall-bladder is found to be a catchpool of disease germs, which display their activity under signs that longtime went unrecognized or were incorrectly construed. Much of our knowledge and the deductions made therefrom is of too recent achievement to hold as yet a settled place. Further study of detail is required. It shall be the object of this paper to chronicle some observations and reflections bearing on the movement of gallstones and gall colic.

The acute interest felt in this topic at this time obviates detailed introduction or extensive allusion to its well-known literature. Gallstone colic formerly was invariably associated with the movement of gallstones. The concretions were regarded as the one essential element, the accompanying fever a mere reflex. Latter day views preponderate to ascribe to an infection of the gall-bladder the paramount significance; to the gallstones only coincident bearing. The inflamed gall-bladder swells the tissues of the bladder wall, the consequent secretions distend its interior, and both incite—by muscular activity and increase of fluids—the intracystic tension which propels the calculus into the cystic duct. Striking are the different views entertained with regard to whether the stone, as such, is or is not an inciting factor to gall-bladder contractions; and, too, opinions vary with regard to the size of stones possible to pass through the narrow biliary ducts.

The contention of Kehr and Riedel is illustrative of the variance of opinion prevailing about the relative frequency and significance of stone and inflammation in producing gall-bladder disquietude and disease. Kehr, adhering to general principles, attributes to

infection practically the entire burden of these disturbances. Infection, according to Kehr, is present and causative, even in cases of lightest degree of colic. He scouts Riedel's idea that a foreign body inflammation (Fremdkoerperentzuendung) has clinical verification or significance. Riedel, in part agreeing with Kehr, for the rest assumes that the stone is the initiative etiological agent in many cases. He declares that the contention of some authors that the gall-bladder becomes infected through the duodenal papillæ, is wanting in conclusiveness. He argues that the hydrops of the gall-bladder is the starting point of an acute cholecystitis. The latter, so he maintains, develops slowly in the course of years. The stone uppermost in the gall-bladder, usually the largest and oldest stone, in so far as it is not an only stone, advances into the neck of the bladder, which it occludes. Gradually the pigment in the bile of the bladder becomes absorbed, the water is retained, and the hydrops with stone is an accomplished fact. The patient observes nothing of this, and nothing even when pressure ulcers form and the contents of the gall-bladder become turbid—not even when microbes and leukocytes appear in the serum. The accumulation of pus in the gall-bladder goes on unobserved until, finally, the attack of so-called gallstone colic sets in.

The immediate cause of the colic, Riedel says, commonly is unknown to us. Only at times it becomes associated with a trauma. The uplifting of a heavy burden, a strain, a jarring from riding over uneven roads, rough palpation of the diseased gall-bladder, are insults which may call out the cholecystitis, as they often do evoke attacks of appendicitis. It is designated an acute lighting up of a chronic disease. The attack develops variously, differing with the contents of the gall-bladder; it is mild when the serum is sterile, and grave, even stormy, when the microbic contents are accordingly.

Kehr's view that an infection supervenes upon preexisting gallstones, generally speaking, is supported by clinical and pathological observations and reasoning. It would seem indisputable pertaining to cases attended with rise of temperature. Less so where pyretic temperatures are wanting. There are no doubt cases where the verified passage of stones is unattended with fever. The writer, about twenty years ago, systematically treated attacks of recurrent gallstone colic with podophyllin. This remedy was given in one-quarter grain doses, three times daily, with just enough morphia and ipecac to touch off the harsh edge of the intestinal colic produced by it. It was found that this remedy, in

the majority of cases, brought on gall-colic of variable degree. It was not equally successful in eliminating stones, as might be expected from the nature of the accompanying conditions in such cases and the varying size of gallstones. But a number of the cases so treated were relieved of gallstones which appeared in the stools. One case in special stands out boldly in memory. A long history of so-called "stomach cramps," a persistent use of podophyllin, followed by violent, recurrent attacks of gall colic through three weeks, ofttimes calling for hypodermics of morphia and atropia; finally, one night, with stool, a grist of twenty-nine gallstones were released. In these cases there was observed no elevation of temperature, though at times it was found to be subnormal.

To the writer it seems unmistakable there are cases which are unattended by infection at the times of colicky attacks. Also, there are cases where an attendant pyretic temperature may be owing solely to a complicating disease not directly associated with the gall-bladder, but which, perhaps, may have influence in producing an attack of gall colic. For example, when an inflammatory disease located in other organs is attended with violent vomiting, and the latter mechanically incites colic of the gall-bladder containing stones.

Riedel's contention that the hydrops marks an initial stage of the gallstone colic, seems fairly reasonable in quite a number of cases. The physical examination of such cases, and the finding at the time of operation, would lead the writer to accept many exceptions to this rule. There is notable the finding at operation of a gall-bladder, small and inoffensive looking, in a case where only a few days previously there was unmistakable evidence of a large, tender, cholecystic tumor, and where the contents of such gall-bladder were found a clear yellow bile, not an achromatic, mucous fluid.

Drawing upon analogy, it seems reasonable to assume that a gallstone engaged at the neck of the gall-bladder would excite an irritation of the wall of this organ, not unlike that observed in the pregnant uterus when its contents have become unsettled, and these act like a foreign body. The vaginal portion, previously of comparatively firm consistency, suddenly swells to large size with edematous infiltration, and the dormant uterine musculature becomes active; rapid dilatation of the cervical canal and violent expulsive pains occur. In the case of the gall-bladder, a stone wedged in its cervical canal may be supposed to bring forth

similar changes, affecting both the musculature and connective tissue of the entire organ. A clinical observation bearing on one side of this question pertains to a case seen in 1882. An old Jewess, with pendulous and wasted abdominal walls, had many attacks of gallstones through twenty years. At the time of the first observation, she had a tender swelling in the right hypochondrium. In regular recurrence she had attacks of intense colic, during which there would appear a small roundish protrusion of the reddened, edematous skin over the most prominent part of the swelling. This would recede immediately upon cessation of the colic. The consistency of the protuberance, taken in conjunction with the history of the case, suggested a gallstone in transit. An incision of the skin over the protruding part brought a gallstone into view. This was, however, not projected during several pains, when it was removed with a dressing forceps. The stone was seized in like manner as the obstetric forceps grasps the presenting fetal head. Four large stones were removed in this way. A finger introduced into the opening during colic was seized and compressed as at times the hand in utero is incarcerated by firm contractions. In short, the musculature of this gall-bladder had developed mightily under a stimulus of long standing. Its power was effective in establishing a new passage, when the natural one—namely, the cystic duct—was insurmountably occluded.

In like turn an edema often develops in these cases which both occludes the cystic duct and adds to the size of the organ by infiltration of its wall and secretion into its cavity. There occurs eventually a widening out of the canal with gradual propulsion of the stone. In some instances Nature, unaided, is often engaged a long time and intermittingly in this work, and even finally may fail of accomplishing her task. The latter instance is given in a case where at operation a stone is found well down in either the cystic or common duct, firmly wedged in. It is reasonable to accept that the biliary ducts are thus capable of wide dilatation. It is not necessary to assume that in each instance the size of the stone is exclusively owing to accretions after it has descended into these channels, as commonly accepted.

Opinions of authors and practitioners vary greatly upon what size of stones can be passed by the cystic or common duct. No doubt most times large stones that were passed by bowel or vomited have left the gall-bladder through unnatural openings. Yet there is unmistakable evidence of comparatively large stones having passed by natural ways.

In conclusion, I offer a few words on the bearing such observations may have on practice. Temperature should be regularly taken in all cases of gall colic. Its presence in a case of gallstone colic may be the first definite sign of a grave disease. Every case of gall colic having temperature imperatively calls for local examination to detect evidence of inflammatory character, gangrene and pericystic involvements, or excessive enlargement and possible rupture. The persistent absence of fever would commonly indicate a state devoid of danger, and, when associated with concurrent conditions, might warrant persistence in non-surgical measures. A gall-bladder without tenderness and of not excessive enlargement also indicates a favorable course.

DISCUSSION.

THE PRESIDENT, DR. MORRIS, New York.—The paper read by Dr. Pantzer is timely. Twenty years ago we discussed the question as to whether there was something in the appendix or not, and on this point we based our decision as to whether to operate or not. If there was something in the appendix, we operated; if there was nothing in the appendix, we usually let the case go. We now stand in gall-bladder surgery just where we were twenty years ago on the appendix question. The microbe is the biggest thing that ever gets into the gall-bladder. This paper is now open for discussion.

DR. JOHN A. LYONS, Chicago.—Last evening I was called in consultation and found a patient with symptoms that clearly indicated appendicitis. The symptoms were so clear that I was surprised the case could have been overlooked.

About four months ago a professional friend, whom I invited to become a member of this Association, had several blood tests made by eminent men to determine whether he was suffering from cholecystitis or appendicitis, or what was causing continual pain which radiated from the right to the left hypochondriac region. All of these practitioners decided that the case was one of cholecystitis, and our eminent Fellow, Dr. Ferguson, concurred in the diagnosis, and to him was given the honor of operating on the patient. He opened the abdomen, shortly after which he hung his head and said, "Lyons, I am sick at heart." I replied, "What is the matter, Doctor?" He said, "Multiple carcinoma of the liver." I said, "Surely not. Can't we have a specimen?" A section of the liver was removed, the specimen was taken to one of the best pathologists in Chicago, and the diagnosis of carcinoma of the liver was confirmed.

I have cited that case to show that it is difficult for even scientific men to make a positive diagnosis of gall-bladder trouble in

some instances. It is surprising sometimes how incorrect a diagnosis is.

Dr. James F. W. Ross, Toronto.—This question of gallstones is a very important one. It has been gradually developed, and after listening to this paper it reminded me of the old days when we used to have our dear old friend, Dr. W. E. B. Davis, give us the results of his experimental work in gall-bladder surgery.

Last winter I prepared a paper for one of our Toronto medical societies on gangrene of the gall-bladder. I have had five cases of gangrene of the gall-bladder in my experience, and have come to the conclusion that the symptoms are very definite, by which it can be diagnosed, and of course when it is diagnosed it needs immediate operation just as a case of gangrene of the appendix does. In one case no gallstones were present, but the gangrene occurred about them. This case demonstrates to my mind the possibility of the existence of gangrene of the gall-bladder without the presence of stones. For some reason or another, inflammation took place in its coats and then it became gangrenous. In two of the cases the gall-bladder sloughed away. The patients were so ill at the time of the operation that it was not considered advisable to do a prolonged operation. The abdomen was opened, gauze packing was resorted to, Morison's pouch drained from behind, and the case left in that way. All of the five cases recovered.

One of the symptoms that impressed me was that the pulse became peculiarly irregular. The patient complained of severe pain in the neighborhood of the gall-bladder as the first symptom; then she appeared to be desperately ill. In two of the cases the patients became cyanosed. There is elevation of temperature, sometimes to several degrees. The pulse in two of the cases became so rapid that the attending physician became alarmed. The members of the family thought that the patient was dying, and he was sent for. I saw the patient in consultation, and after a while the symptoms improved again, but later there was a sudden rapid increase in the pulse and the attending physician was sent for again. Then I saw the patient a second time. This irregularity of the pulse has not been mentioned in the books, so far as I know.

The treatment of gallstones is well recognized. It has been practically settled.

A few years ago I presented to this Association an instrument devised for the purpose of assisting in the removal of stones from the common duct. We all know that it is a difficult operation. We do not meet with many cases of stone in the common duct, and I want to say now that the instrument I showed then has been very satisfactory in other cases in which I have used it, and I can recommend it to you. Dr. Carstens, of Detroit, has had one made, and I gave one to Mr. Thomas, of Cardiff, Wales. Only three of them, I believe, have been made so far. It is an instrument with rollers and fenestrated blades, intended to grasp

the stone in the duct, to hold it in position, and while a running suture is placed, an incision is made and the stone is needled and removed. The opening is then closed. This makes the operation extremely easy.

DR. JAMES F. BALDWIN, Columbus.—I have had an unusually large number of cases of gangrene of the gall bladder. In fact so many that I have been planning to make them the basis of a paper on this subject. I have not noticed the symptom to which Dr. Ross has called our attention—namely, irregularity of the pulse, and am inclined to think that in his cases it was merely a coincidence. My last case of gangrene of the gall-bladder left my hospital last Sunday, having been operated on three weeks before. He was a stranger from Cincinnati, who was taken suddenly sick at a hotel and I saw him a few hours later in consultation. There was no elevation of pulse or temperature, but he was complaining of severe abdominal pain, and his appearance was that of pronounced shock. He gave a history dating back a year or more, during which time he had had three distinct attacks which had been diagnosticated as appendicitis. I telephoned to his physician in Cincinnati, who was very positive that one attack, during which he had attended him, was clearly one of appendicitis. The patient was in desperate shape, and an immediate operation was indicated. Notwithstanding the Cincinnati diagnosis of appendicitis there was more tenderness over the gall-bladder than over the appendix, and I accordingly made my incision high up. This was fortunate as it opened directly upon a gangrenous and ruptured gall-bladder, containing about fifty gallstones. The cystic duct was clamped, the gall-bladder removed, and an uneventful recovery followed.

In most cases in which we find this trouble the symptoms are those of acute inflammation. In one case the symptoms were present which are looked upon as so characteristic of gangrene of the appendix—namely, sudden cessation of pain. In this patient the temperature was rapidly going up, and also the pulse, but the patient was feeling greatly relieved because of the cessation of pain. When I explained to him that this absence of pain was his worst symptom he appreciated the situation and promptly acquiesced in an immediate operation.

The symptoms that we get in these cases are those which are common to grave disorders involving any of the viscera in this vicinity. A perforating ulcer of the duodenum, or stomach, an acutely inflamed appendix, if higher up than normal, or an acutely infected gall-bladder, will all give us about the same symptoms. The attending physician may make a lucky diagnosis, but it is usually sufficient if he recognizes the gravity of the conditions present.

In my series of cases only one death resulted. In that case the operation was not made until the fourth day. Extensive peritonitis was present, and the operation was made at a considerable distance, and in a private house with quite unfavorable

surroundings. Could the patient have had the advantages of a hospital I think he would have recovered. In this particular instance the patient was attended by most excellent physicians, and the diagnosis seemed to be in doubt between appendicitis and typhoid fever. Indeed, a specimen of blood which had been sent to the State Board of Health was on examination by the Board pronounced to indicate typhoid fever, and a telegram to that effect was received while I was examining the patient. There is certainly a close resemblance between acute appendicitis and acute cholecystitis, the difference between the two being chiefly in the location of the tenderness and perhaps the history of the case. Acute fulminant appendicitis, and acute infection of the gall-bladder with gangrene, present symptoms which in many cases cannot be differentiated; but fortunately the differential diagnosis is not of very much importance.

Dr. Joseph Price, Philadelphia.—It would seem that the gentlemen who are taking part in this discussion are limiting us to a narrow zone. Gallstone colic is not common, but disease of the gall-bladder is exceedingly common. In the Eastern States you will find gall-bladder troubles, particularly in the insane asylums, and old women's homes, the percentage being as high as thirty or forty per cent. in all cases that have come to post-mortem, although the patients apparently manifested no symptoms of gallstones during life. They told me at the Female Department of the Norristown Asylum, where there are twelve hundred women, that these women rarely have symptoms of gallstones, and yet they have found gallstones in thirty per cent. of post-mortem examinations. The practitioners there are good diagnosticians. They find concealed hernias; they recognize appendicitis in these demented women, which is really a difficult thing to do. So it is folly for any of us to say that the physicians who manage these institutions are not good diagnosticians. I have not found gallstone colic a common symptom, and just here let me allude to a common criticism that is made in the West, for instance, that Eastern physicians overlook gall-bladder disease. There are certain surgeons in the West who say that many of the patients brought to them from the East with appendicitis are found to have gall-bladder disease. We also find this in the East. Eastern surgeons have been busy in establishing the pathology of not only gallstone disease, but appendicitis and other important troubles. In the East we operated for a gangrene of the appendix on Western patients. Later the patients had operations for gall-bladder disease. It is very essential for us to make a differential diagnosis between cholecystitis, disease of the duodenum and perforating ulcer of the stomach. In the East, Morris and others have educated the profession up to diagnostic refinement and ability, and it was only necessary for such men to sterilize their instruments and go to work. It is not necessary for them to listen to the criticism of Western surgeons that in the East we do not make accurate diagnoses. I have operated in a number of

hospitals, and when I have entered the hospital I have asked the physician in charge, "What have you?" After putting the patient on the operating table and doing the operation, I have found precisely what he told me. This brings me to the vital point that Dr. Morris makes—namely, that we should hunt for the germ and get rid of it. This brings us back to the consideration of drainage, mentioned by Dr. Ross, who has operated on five consecutive cases of ruptured and gangrenous gall-bladders, and has saved all of them by that refinement of surgical instinct, judgment and skill which he possesses. He practised toilet and drainage in these five cases on dying men, without a death.

A word or two in regard to these puzzling differential diagnostic points. We are told, for instance, how a rigid right rectus is sufficient in gall-bladder disease. That is not so. True, a rigid right rectus is commonly present. It is a good symptom, but it is not an infallible symptom, nor is colic.

A man came to Philadelphia for a gall-bladder operation and a few hours after reaching the city he had an acute agonizing pain. A good surgeon opened his abdomen and found a perforation of the stomach, with free hemorrhage. The surgeon made a little window through his meso-colon, upset his stomach, closed the opening, made a toilet, drained, and the man made a beautiful recovery. Here was a case with a clear history of gall-bladder colic, with perforation. It is a typical case in point when this subject is under discussion.

Gall-bladder surgery and its pathology had their origin in Philadelphia. Some of the first contributions to gall-bladder surgery of much value came from Philadelphia. Of course, Indiana produced the first surgeon and first diagnostician on the subject. I refer to Bobbs.

There was a time when London physicians and surgeons abused Lawson Tait because of the number of cases of tubal trouble which, he had found, existed. They said these troubles existed only in Birmingham. They likewise made similar unkind remarks regarding the prevalence of gallstones when Tait was operating on case after case of gall-bladder trouble. They said that gallstone disease did not exist in London. A woman of considerable prominence who was suffering from gallstone colic and gallstone disease made her way to Birmingham to see whether Mr. Tait could relieve her. A number of eminent physicians went to Birmingham from London to witness the operation, and soon became convinced of their existence. Tait removed a large number of gallstones from this woman, and she made a good recovery.

Dr. William H. Humiston, Cleveland.—I wish to confirm what Dr. Price has said in reference to the frequency of gallstones without symptoms. During my residence in Vienna for several months, both times while I was there, I was in the habit of going down to the autopsy room where they had from six to twelve cases brought in daily from all departments of a hospital

in which there were thirty-five hundred beds. The frequency of gallstones was very apparent, but where the patients had died from other diseases, without symptoms of gallstone colic, they were very, very common. I have found on careful examination that a rigid right rectus is an indication of gall-bladder disease. If you have no other symptoms; if you have any adhesions in the pelvis to any extent, any pressure on the right rectus will give you rigidity. In fact, I have diagnosed adhesions where there was some question as to whether they existed or not by firm pressure in the region of the navel, and if there are adhesions this will excite pain.

I made a very clever diagnosis, I think, some time ago, where a patient had been examined by several, who said that she had two adhesions. She was suffering great pain; she had had two operations in the loin many years before, and the scar here was breaking open. I was able to diagnose adhesions in this case, relieved them, and the patient has been well since that time.

My experience in gallstone disease is entirely associated with pelvic disease. I find gallstones not frequently but commonly, in fact. My experience comprises about twenty-two cases where there has been gall-bladder disease with inflamed appendages or appendicitis.

The last case I had was a typical one of recurrent appendicitis and also of very typical gallstone disease attacks. The woman had pain in the right hypochondriac region, tenderness, with vomiting and icterus. The condition we found in the pelvis was one of enlarged uterus, a lacerated cervix, endometritis, with a mass to the right of the right vaginal vault, and on making an incision after curetting and repairing the cervix I found that the ovary and appendix were walled off together. There was a pus cavity which I removed, and drained, and then made an incision higher up and removed forty-nine gallstones. This was the first case in which I have ever found pure white gallstones, associated with the ordinary brown-colored, irregularly shaped stones, some as large as a cherry.

Dr. Charles L. Bonifield, Cincinnati.—In writing and speaking of gallstone colic there is confusion displayed as to the condition that really exists. There is a decided difference between a pain which is due to an acutely inflamed and distended gall-bladder and one that is due to true gallstone colic. Pain in the gall-bladder itself is due to contraction, and that contraction may be caused by the effort of the stone to pass through the duct, or it may be caused by an inflamed and distended condition. It is a severe, excruciating pain, which should only be dignified by the name gallstone colic. Tenderness, soreness and discomfort due to an inflamed gall-bladder is a different thing. It has been my experience that the cases that give rise to gallstone colic are those in which small gall-bladders are filled with a large quantity of small stones, usually attended with some inflammation, and these small stones are apt to get into the ducts.

Dr. Price has called our attention to the fact that not every patient who has gallstones has symptoms, and there can be no question to that fact, but still I believe every patient who has gallstones is liable to develop symptoms. I believe the presence of gallstones in some way predisposes to infection of the gall-bladder. That leads to this question: For a number of years we have discussed the advisability of removing the appendix, whether it was diseased or not, when doing other abdominal operations, and of late years the question has come up as to whether, when we have opened the abdomen for pelvic conditions, it is wise to palpate the gall-bladder, and if gallstones are present, to remove them.

Some years ago I was doing a hysterectomy for a fibroid in a sister of one of our prominent Cincinnati physicians. When I finished the fibroid operation I found a large number of gall-stones, but as the woman had had no symptoms, I decided not to molest them. Shortly after she left the hospital she had severe attacks of gall-bladder inflammation. A year later I opened the gall-bladder and removed the gallstones.

As has been said, germs are really the cause of this trouble, and it is a question if the gallstones themselves were not originally caused by the presence of germs, and they are simply the ashes that were left behind.

Dr. O. H. Elbrecht, St. Louis.—I want to say only a few words in reference to this subject. Dr. Price referred to the Mayos, who, we all know, have done such brilliant work on the gall-bladder. Their success in diagnosis does not depend upon only the usual classical symptoms in typical gallstone colic, but much of their success in finding gall-bladder diseases so frequently depends more or less upon symptoms that others do not generally look for or give much consideration. To show the direction of their thought, Dr. Wm. J. Mayo made the statement that he thought that about thirty per cent. of the cases treated by stomach specialists probably are gall-bladder diseases instead of primary stomach diseases; thus showing that one of the commonest and most reliable symptoms is the disturbance of digestion, and the Mayos consider this one of their most valuable diagnostic signs.

Dr. Pantzer (closing the discussion).—The free discussion that has followed the reading of my paper is to be regarded as an evidence of the importance of the subject. The important clinical fact is emphasized that cholecystitis, or, if you choose to call it, gallstone and gall-bladder diseases, is second only to appendiceal disease in the abdomen. If we may put it that way, then we must conclude that these diseases go frequently without recognition.

Like several of the speakers, I have had a number of cases of gangrenous cholecystitis brought to me that had been diagnosed as typhoid fever or appendicitis. The disease had developed to such an extent that the patients were practically moribund when

seen by the surgical consultant. Four of my patients were in this state when I made the last desperate effort to save life simply opening the abdomen and providing drainage.

The frequency of gallstones bears no relation to the frequency of gall-bladder disease. The figures of Riedel go to show that of the sixty millions of people in the German Empire, there are only two millions who have trouble with the gall-bladder, and of this number only one hundred thousand are afflicted with symptoms that are characteristic and are recognized by surgeons.

With reference to gangrene of the gall-bladder, I wish to say that the possibility of a cholecystitis gangrenosa is to be entertained or looked for in every case presenting symptoms of grave abdominal inflammatory disease.

TUBERCULOSIS OF THE KIDNEY, WITH REPORT OF CASES.

BY

RUFUS B. HALL, M.D.,

Cincinnati.

UNTIL recent years tuberculosis of the kidney was regarded more as a constitutional than a local disease, more of a medical than a surgical condition; but the rapid advance in operative surgery has in this disease, as in many others, disproven that theory. A decade ago surgical treatment of renal tuberculosis was but tentative and opinions of the foremost men in the profession were at variance whether any operation whatever was justifiable. If any operation was advised, what was suitable for the various kinds of cases was a difficult problem to determine. After Klebs had demonstrated that the tubercle in the human subject invariably contain bacteria, that he could cause the same disease in animals by inoculation by the cultures obtained from the bacteria, thus stimulating other investigators, it was not long until Koch, in 1882, made known to the profession that he had positively identified the special bacillus of tubercle. After his announcement there very soon appeared an army of workers and the knowledge of tuberculosis and its ravages was known to the profession in a new light as they are understood to-day.

This knowledge places us in a position to study tuberculosis of the kidney from a rational standpoint, hence for the surgical treatment and the refinements in the diagnosis we are very largely indebted to the discoveries of Koch. If it were not for the knowledge thus derived, we would be groping in the dark in the diagnosis and treatment of this disease as did our forefathers. It was pointed out as early as 1882 by Coneheim that man could by means of his renal excretion eliminate the bacilli of tuberculosis, and he believed that these bacilli could be transported from the lung into the urine by the blood and, after reaching the bladder, could there excite tubercular lesions without causing injury to or infection of the kidney in their passage. Many other writers subsequently confirmed his writings. They believed that the bacillus could filter through the kidney without causing

tubercular disease therein. Others, disagreeing with these views, believed that to make the excretion of the bacilli possible there must be a change in the secreting tissue whereby these tissues were made permeable, and that this change was effected by the virus of the microorganisms.

Up to the time these observations were made sufficient attention from the point of view of surgical progress had not been given to the question whether renal tuberculosis was a general or a local infection; whether from the point of view of treatment tuberculosis was an operable or an inoperable disease. Clinical knowledge acquired by a vast number of the best surgeons of to-day demonstrates the fact that renal tuberculosis is a localized affection limited to one kidney in the vast majority of cases, and a large number of the closest observers believe that if the diagnosis could be made early we could see a still larger percentage of these cases while the disease was limited to one kidney. To sustain this opinion it is only necessary to remind you that when these cases are allowed to come to the post-mortem table in at least 50 per cent. the disease is still unilateral.

ETIOLOGY.

Renal tuberculosis is due to the tubercle bacillus, which may reach the kidney through the circulation; or it may be conveyed by the lymphatic channels in that region; or the disease may extend along the walls of the ureter by continuity from the bladder; or more rarely infection may be directly communicated to the ureter through some tuberculous focus situated outside of the genitourinary tract.

When the infection is conveyed by the circulation it may either run an acute course or a chronic one, resulting in caseation. In the latter case the caseated nodules may extend into the calyces and give rise to tubercular pyonephritis. When the disease reaches the kidney from some of the lower parts of the genitourinary tract by way of the ureter, the kidney is the last portion of the urinary system to be affected. There are believed to be other modes of infection, but from a surgical standpoint they do not concern us here. When tubercle is suspected in any case of chronic renal disease, if the urine contains pus or blood and we can detect the bacillus, we may say that the patient is suffering from tuberculosis. But our duty does not end here. We must localize it and say that it is limited to a certain organ or not, if we do our duty to our patient. In discussing this subject, I purposely speak of the disease only as met with in women.

PATHOLOGY.

Careful study of these cases teaches us that the kidney is often affected with tuberculosis without either the ureter or the bladder being involved. We also know that when the disease commences in the kidney it is prone to spread along the ureter to the bladder. Pathology shows us also that the ureter and kidney may be secondarily invaded, though very rarely so, in an ascending manner by an extension of the disease from the bladder. When the disease is of the ascending type it is very much less promising from a surgical standpoint than it is when it is first local in the kidney. This fact should stimulate us to greater effort to make a correct diagnosis early in the disease. The disease usually follows the course of the bloodvessels, and, when it reaches the parenchyma, it implants the bacilla about the vessels of the malpighian tufts. As the disease progresses and the caseous masses have sufficiently increased in size, the tissue softens and breaks through into the calyces and discharges into the renal pelvis and ureter, or they may rarely break through the fibrous capsule of the kidney and form tuberculous perinephritic abscess, which is not a rare condition, as in one of the cases reported. The discharge of the pus and bacillus through the ureter, not infrequently the latter, becomes temporarily obstructive, developing a hydronephritic kidney.

In fact, in all of the cases coming to operation, if the disease is at all advanced there is more or less distention of the kidney from the temporary blocking up of the ureter from this cause. As the disease progresses the ureter in the vast majority of cases becomes more or less involved in the tubercular process. If the disease is allowed to advance, not infrequently in the region of the opening of the ureter we will find tubercular ulcers in the bladder mucosa. The symptoms in renal tuberculosis are very characteristic if the disease is well marked, yet it must be understood that many of the symptoms are present in other conditions.

The difficulties of diagnosis are considerable, yet not insurmountable. The main symptoms are lumbar pain, dysuria, polyuria, frequent micturition by night as well as by day, pyuria with acid urine, hematuria with acid urine, the presence of tubercle bacilli in the urine, loss of flesh, night sweats, pallor, and slight elevation of temperature, especially in the evening. Pain in the loin is sometimes the first symptom complained of. It is of moderate intensity and not usually aggravated by exercise. As the disease advances the pain usually becomes greater and the

patient seeks relief, so that when first seen the history given is that she has suffered pain in the loin for varying lengths of time, maybe for a few or many months, while the pain is but little if any increased in severity by delay. It is usually referred to one loin and radiates to the pelvis. The pain may be so severe at times that it resembles nephritic colic due to a stone. This is usually due to temporary obstruction of the ureter from pus, but it is not so severe as that of the pain caused from stone. Increase in the size of the kidney is very common and in many cases a definite tumor can be outlined.

THE URINE.

Polyuria is a frequent and early symptom of the disease. It may be present during some days and absent on others. When it does occur it may be accompanied by dysuria. There may be no other symptoms in the early stages of the disease, and when it occurs in an enfeebled person and no other cause could be assigned, renal tuberculosis ought to be the first disease considered. After the disease has continued for a few months, the urine contains various quantities of renal tissue. The reaction is nearly always acid and whenever we find pus in acid urine we should at once suspect tuberculosis. We may find the urine completely clear for a short time in those cases in which there is ascending tuberculosis, on account of the temporary blocking of the ureter on the diseased side, which is more likely to occur from ascending than the descending form of the disease.

It is very important in every case of chronic renal tuberculosis, especially when a surgical operation is contemplated, to know the condition of the opposite kidney. It has been stated that in 50 per cent. of all cases coming to post-mortem one kidney remains healthy. It is more than probable if these patients could be seen early and a correct diagnosis made, that in a very much larger percentage the disease would be found to be limited to one side only, which is a very important matter from a surgical standpoint.

There are also present tubercle deposits in other parts of the genitourinary tract. The bladder is often affected. There may be old or recent tuberculosis of other organs of the body, such as the lung, pleura, or intestine. The urine should be examined carefully for the bacillus of tuberculosis, yet in more than 50 per cent. of the cases of tuberculosis of the kidney the bacillus is not found in the urine under the microscope. It is often absent in the urine in cases of primary renal tuberculosis and in cases of

descending tuberculosis, if the ureter is blocked. Bacilli are sometimes detected by the inoculation experiments with the urine in which they are not found in the staining and microscopic examinations.

Frequent micturition, besides being often the earliest symptom, may for a long time be the only one. It occurs during the night as well as the day. This symptom in a person between twenty and forty years of age should always excite suspicion of the disease. Even in the early stages of latent renal tuberculosis, in many cases there is a slight elevation in the evening temperature. If there is septic infection, the temperature may rise to 103° or 104°. Loss of flesh, loss of appetite and sallow or pale skin are symptoms incident to the general anemic state which may precede any local urinary disturbance, but they are more likely to occur after tubercular disease has existed for some time.

Intermittent pyonephrosis from partial obstruction of the ureter is an important clinical fact, as some rough knowledge of the state of the opposite kidney may be obtained by examination of the urine passed in the intervals between the attacks of pyuria. The early diagnosis of renal tuberculosis is of very great importance and, if this be made, the patient may be saved the necessity of subsequent nephrectomy by being sent to a suitable climate and being placed under proper dietetic and hygienic conditions. The diagnosis is difficult, but not insurmountable with the present refinement in the diagnosis; if we study the clinical history carefully and patiently interpret it, we will usually be rewarded by the ability to form a correct diagnosis.

When there is frequent micturition, polyuria, or hematuria in an acid urine, together with the elevation of the evening temperature; when pyuria is present and the hemorrhage not influenced by rest or movement; when the patient is pallid and losing flesh, and if there is fullness or a tumor with or without pain in the renal region and tubercle bacilli is found in the urine, we have an assemblage of symptoms which are sufficiently characteristic and positive. We must not overlook the fact, however, that all or many of these symptoms may be absent in the early stages of the disease and occasionally throughout its whole course. In the early stages of the disease it is difficult, even impossible, in the absence of bacilli of tubercle to diagnosticate tubercular kidney from renal calculus. Then more reliance must be placed upon the other signs of tuberculosis. In stone there is more likely to be hematuria brought on by exercise or exertion, which ceases on

resting or lying down. The pyuria is generally intermittent; whereas, in tuberculous kidney, blood is usually found only in small quantities and the hematuria is not aggravated by exercise and does not abate by rest. The purulent urine is continuous, excepting when the ureter is occluded temporarily.

The use of the *x*-ray is of great value and should not be neglected in any case in which the question of stone is at all in doubt. Cystoscopic examination of the bladder should be made in all cases. The ureteral orifice of the bladder will be found inflamed and reddened on the affected side in marked contrast from the healthy side. Second, the urine should be collected separately from each kidney for examination after irrigating the bladder with a normal salt solution; then by means of the Harris instrument it may be collected without catheterizing the ureters and, in many cases this will suffice. If it does not, we must catheterize the ureters by passing the ureteral catheter a short distance only in each ureter and collect the urine separately for our examination.

The cystoscopic examination of the bladder is a very important matter in the diagnosis in all cases. It often clears up the doubt at once and should not be neglected. On several occasions I have been able to observe clear urine ejected into the bladder from a healthy kidney, while at the same time on the opposite side I could see the pus and urine being discharged from the diseased kidney into the bladder from a greatly inflamed ureteral orifice. I report only three operative cases selected from my work as illustrating the benefits derived from surgical operation even when the disease is far advanced. I will only make a very short report of each because my paper has already assumed undue length.

Case I.—Mrs. B., aged thirty years; mother of one child; Portsmouth, Ohio; patient of Dr. Berndt. She had suffered for a year or more with an irritable bladder, with a gradually increasing amount of pus in the urine, and frequent desire to urinate. At the time of the operation she could not retain her urine longer than two hours at any time during the night or day, and in the day time she was frequently compelled to empty the bladder as often as every half hour. Her rest at night was greatly disturbed by frequent calls to empty the bladder. She had lost many pounds in flesh, was anemic and feeble. About the time she commenced to notice the irritable bladder she also observed a discomfort in the region of the right kidney. This discomfort augmented as the amount of pus increased. At times she would

suffer quite severe attacks of pain, lasting an hour or two, and the kidney, which was somewhat enlarged, would be perceptibly more tender and enlarged. For a period of two or three months before the operation the kidney enlarged rapidly, so that at the time of the operation it was much larger than a cocoanut, and she was suffering almost daily attacks of pain. The specimen of the urine, of about a pint, voided on the day of the operation was one-third pus, in bulk. The operation was made July 28, 1905, by making an incision in the loin, exposing the kidney, with the object of saving it, if this should be deemed advisable at the time of the operation. But, when the kidney was exposed it was found densely adherent over its entire surface, and almost entirely destroyed by the diseased process, and for this reason it was removed. The patient made an easy and rapid convalescence without any complications, excepting a sinus, which remained for several weeks, probably due to the diseased ureter. A sinus is not unusual when the ureter is much involved in the tubercular process, but it closes after a few weeks. The pus disappeared from the urine at once; the patient has regained her usual health. The irritability of the bladder disappeared in a few weeks and has not returned.

CASE II.—Miss B., age 20 years; patient of Dr. Joseph Eichberg; was seen in consultation on June 28, 1906. A previous diagnosis of tuberculosis of the right kidney had been made by her physician and an operation advised. This patient had suffered from an irritable bladder for two years. Early in her history, Dr. Eichberg, who was her physician at the time, advised an operation for exploration and drainage of the kidney, with the hope that the organ might be saved, but the family objected to an operation and changed physicians. The new physician called, treated the patient the way the family wished it, that is, without an operation. Her condition became worse constantly, and finally was so bad that they again called Dr. Eichberg.

The patient now was much emaciated, suffering greatly from the irritable bladder, with frequent attacks of pain in the region of the enlarged kidney, and almost one-third of the bulk of the urine was pus. Dr. Eichberg urged an immediate operation, and the family consented. At the time of the examination the kidney was as large as a cocoanut and very sensitive upon pressure, the patient suffering from sepsis in addition to her other illness. She entered the Bethesda Hospital, June 30, was operated July 2, and the right kidney, which was studded with abscesses, was removed.

There was also a perinephritic abscess holding several ounces of pus. The pus disappeared from the urine at once. The irritable bladder disappeared within a few days, and the patient was greatly relieved. She recovered promptly, and has regained her usual flesh. She is enjoying perfect health. There is no pus in the urine and she is perfectly comfortable so far as her bladder symptoms are concerned.

CASE III.—Mrs. F., age 31 years; mother of two children; was referred by Dr. Rush of Greenville, Ohio. The patient complained of an irritable bladder, the desire to empty the bladder being constant. She could rarely go one hour either night or day without voiding urine. She was greatly emaciated, having lost thirty pounds in flesh. The patient's home was twelve miles distant from Dr. Rush, but she had been under the charge of another physician for five months. She had recently consulted Dr. Rush, who recognized the kidney lesion as the cause of her irritable bladder, and referred her to me. The right kidney was greatly enlarged; the patient had frequent attacks of pain in the region of the kidney, which would last for an hour or two, but no such pain as we see where the patient is suffering from stone in the kidney. The pain is not so severe in this condition, neither is it so prolonged. Of a specimen of urine, about one-third of its bulk was pus.

After the usual examination an operation was advised, the patient entered the hospital November 4, and was operated on two days later. Upon cutting down on the kidney I found it everywhere adherent. It was enucleated and removed, as the disease was so extensive that but little kidney tissue remained. The pus disappeared from the urine at once; within twenty-four hours the irritable bladder had entirely subsided. Excepting a sinus, which remained several weeks, the patient has had an uninterrupted recovery, and is now enjoying her former good health.

These cases illustrate a group of patients that we not infrequently see referred to as cases of bladder disease. Almost all the patients that I have seen with tubercular disease of the kidney were treated for weeks or months for other than the real affection. It would be well to always suspect tuberculosis of the kidney in patients complaining of an irritable bladder, in which some other good cause cannot be found to account for their condition. In fact, this should be the first thing suggested to the physician in all patients in middle life who complain of an irritable bladder coming on suddenly where a definite lesion cannot be found to

account for it, especially if the urine contains pus and is acid. If the physician would assume that it was the kidney he would look for tuberculosis, and when once suspected it is not so difficult to diagnosticate.

If the tubercular condition could be recognized early, an operation performed, and drainage established, we might be able to save many of these kidneys which, neglected, will in the course of a few months be destroyed by the progress of the disease.

DISCUSSION.

Dr. Robert T. Morris, New York.—Most of these cases in which the tuberculosis involves the mucosa of the pelvis, kidney and ureter, get to us too late. In the other group of cases, in which the tuberculosis involves the parenchyma and not the mucosa, I think surgeons are more often called in time to treat them, and I hope the Fellows will discuss this subject in such a way that the general profession will be ready to call in surgeons early, who are prepared to give prompt relief.

Dr. Edward J. Ill, Newark.—The subject of tuberculosis of the kidney is one I have been very much interested in for a long time.

The first case I saw dates back eighteen years. It occurred in a young girl who in early years had curvature of the spine. It was in the days before we operated for tuberculosis of the kidney. She had tuberculosis of the left kidney and ureter. With that tuberculosis she studied medicine; she took charge of a home for crippled children, and as these children lived out-of-doors mostly, and she attended them, she was soon perfectly well. There are now no tubercle bacilli in the urine.

Another patient, seen twelve years ago, is perfectly well to-day. I do not mention these cases to say that tuberculosis of the kidney should not be operated on, but rather the reverse. For the danger is to go out from the expectative treatment. In the last eight years I have operated on nine cases of tuberculosis of the kidney, removing the kidney and ureter in seven cases. One died of lung trouble a year later which previously had not been recognized; the others are well.

Dr. Hall spoke of drainage in these tubercular cases. All of the cases I have seen would not have gotten well by drainage. Tuberculosis of the kidney usually shows itself in multiple abscesses or small spots penetrating all through the tissue. It is possible that if the case is seen early enough we may find a single abscess, but in none of the cases I saw would drainage have sufficed. On the other hand, we are so apt to infect the surrounding cellular tissue by drainage that I do not think it is wise to practise it. I have gone to the extreme when I have

removed the ureter with the kndney, of not cutting the ureter off with the knife or scissors, but with cautery, so as to destroy the ends thoroughly.

Infections of the bladder or tubercular ulcerations of the bladter usually get well if the origin of the disease has been removed.

Dr. H. O. Walker, Detroit.—With regard to drainage in cases of tuberculosis of the kidney, I am in accord with Dr. Hall's idea of draining these tubercular lesions. I have had some successful results by so doing. The drainage is very thoroughly carried out. I know of several patients who are now alive on whom I did this operation many years ago for tuberculosis of the kidney.

Dr. O. H. Elbrecht, St. Louis.—I would like to recite a case of tuberculosis of the kidney, which developed a miliary tuberculosis and died eight weeks after the operation. In this case the kidney was large, full of pus, and was drained. Two or three weeks following the operation she manifested symptoms of miliary tuberculosis. It was a case in which the kidney could not have been removed without soiling the wound by the escape of pus.

Dr. Joseph Price, Philadelphia.—It is to be regretted that no one in the discussion has referred to the importance of making cystoscopic examinations in these cases whenever there is a suspicion of ascending or descending infection. Many of us go to hospitals in cities and towns and operate for tuberculosis of the kidney, and we find to our astonishment that cystoscopic examinations have not been made. I cannot emphasize too strongly the importance of making such examinations in these cases. I am satisfied that in every case of parenchymatous destructive changes of a tubercular nature of the kidney, removal is the procedure. When the kidney is honeycombed by tubercular foci, it is perfect folly to attempt drainage in such cases. The results in bladder infections and ascending infection of the kidney have been very good when drainage has been instituted early.

Two years ago I had four peculiar experiences. I received four patients whose pathologic kidneys had been anchored. I find that is a common practice. When there is a perceptible increase in the size of the kidney, some surgeons resort to fixation or anchorage of the so-called pathologic, or I had better say floating, kidney. One of these patients was far away from home—Alliance, Ohio. I simply incised the kidney in her home, because the surroundings and assistants were not sufficiently good for the removal of the kidney. That woman came to me some months later in Philadelphia, when I removed her kidney, and she made a nice recovery.

The work of Murphy would tend to show that we should save every kidney cell possible by delivering the kidney and working on it as we would work through the pelvic zone. Where we have but one side free from tuberculosis, I would strongly advise the use of iodoform and iodoform drains. I still have confidence

in this method of treatment, although it is an old practice. I would like to hear the experience of others in this regard. I find that a great many surgeons are a little chary about freeing tubercular adhesions. I continue to free them whenever it is possible to do so, and then use iodoform drainage. I am really fond of this work. Recently a child was brought to me with peculiar abdominal symptoms, among them diarrhea, which simulated somewhat appendicitis. I opened the abdomen, believing it was a case of appendicitis, and found large glands lining both sides of the gut. I removed all of these glands and then used iodoform. I have often been asked whether I was not afraid to use so much iodoform in cases of tubercular peritonitis, and I have told them that while I have used iodoform freely, I have never killed a patient yet with it. These cases get well when so treated. Take an abdomen which is studded with miliary tubercles, and you can make it golden with iodoform after freeing all the viscera, particularly if you get the case early, before the glands are cheesy, and if you rub the tubercular processes with salt solution, use iodoform and iodoform drainage, these patients will get well.

Dr. James F. W. Ross, Toronto.—I am very glad Dr. Hall has brought this subject before the Association, because it is one of great importance to us all. Some years ago, in a paper on the same subject, we were told that in all cases in which the urea was under two per cent., operation should not be undertaken. Since then I have done one nephrotomy on a woman in whom the urea was up to two per cent., and she died from total suppression of urine. So that even when the urea is well up any interference with the kidney under chloroform or ether may occasionally cause death.

The question I am interested in particularly is nephrotomy versus nephrectomy. It is unpleasant to do a nephrotomy and then afterwards find that you have to do a nephrectomy. It is difficult to say whether one should do a nephrotomy or a nephrectomy primarily. English authorities some years ago gave out the dictum that nephrotomy was the best primary procedure, but that nephrectomy should be done secondarily. In the cases that have come under my observation and care, I have followed that out to some extent, because I have not been able to satisfy myself as to the condition of the other kidney. It has been stated that tuberculosis of the kidney is generally bilateral. In my experience that has not been so. I have drained abscesses of the kidney in some cases, have later taken out the kidney, and the patient has made a recovery, and the question has arisen in my mind whether I should not have done nephrectomy primarily. I have a lady patient whose kidney I have been draining for two years, and I am going to take that kidney out unless the tubercular disease has advanced beyond it to the surrounding tissues.

I would like Dr. Hall to enunciate his ideas fully on the question of nephrotomy versus nephrectomy. In cystic kidney it is a difficult matter to decide what is best. I have had one case of

cyst of the kidney, and in drawing the kidney out it looked so much like a congenital cyst that I declined to remove the organ, because one-third of the structure was healthy. Six weeks later I operated on the other side for exactly a similar condition, although at the time of the primary operation there was no sign of disease of the other kidney. In cystic disease of the kidney one needs to be very careful before deciding to extirpate the kidney at the first operation.

As to these cases that yield to drainage, the question arises whether they are really tubercular or not. I have one patient on whom I operated for an abscess of the kidney eight months ago. She had cystitis, ulceration of the bladder, and subsequently an abscess of the kidney developed. I drained this kidney, healing took place, and the wound closed up and the symptoms of cystitis are disappearing. (Note.—The wound has opened again since this discussion took place and I fear the condition is undoubtedly tubercular.)

Dr. James F. Baldwin, Columbus.—It seems to me that the main point at issue is that of early diagnosis. Dr. Hall mentioned one point which I would like to emphasize, and would suggest that the members give it further observation—namely, that nocturnal frequency of urination is not only equal to that during the day, but is greater. I have found this in so many cases that I attach a good deal of importance to it. When we have a patient with an irritable bladder the erect position increases the congestion, and we have increased frequency of urination during the day with relief at night; but when the kidney is diseased there is more congestion when the patient is lying than when he is erect, and hence the frequency of urination is greater at night.

Recently in looking up the matter preparatory to writing a paper on the general subject of surgical tuberculosis, I found statements made by excellent authority that in ninety per cent. of the cases of tuberculosis of the kidney only one kidney is affected when the patient comes under observation. When the case comes to autopsy, of course a very much larger proportion will be found with both kidneys involved.

While I have practised nephrotomy in two or three desperate cases in which I thought nephrectomy would turn the tide and the patients would die, I feel that on general principles it is a non-surgical procedure. Such cases I have no doubt may occasionally get well, but a recovery can hardly be looked for. Dr. Morris has very truthfully stated that when we remove a tuberculous kidney tuberculous ulcers of the bladder may be expected to recover spontaneously. We know, too, that a tuberculous ureter, after a kidney is removed, will usually get well. There is, therefore, no special reason why a tuberculous abscess of the kidney, if we are sure there are but one or two, and that they have been opened and drained, may not heal completely. Similar abscesses of the lungs, or elsewhere, we know, will almost uniformly heal if the general condition of the patient is favorable.

DR. HALL (closing the discussion).—I wish to thank the Fellows for their free discussion of my paper. I purposely cut out reports of two or three cases that I have in the manuscript, as they were put in to emphasize certain phases of relief from desperate conditions in surgery. They were interesting cases in that particular only.

I have made a statement in my paper to this effect—it occurs to me that by exercising more care in making a correct diagnosis early in these cases we may be able in a great many of them, by making a simple operation, to relieve them and save them a kidney. I make that statement, basing it upon personal observations in three or four cases in which I deliberately made the operation, opening up the loin, with the expectation of removing the kidney, but did not do so. Instead, I would find an abscess back of the kidney, containing several ounces up to a pint of pus, and in which there would be a small abscess in the periphery of the kidney not larger than the end of one's thumb. Examining the kidney thoroughly, and getting it in a good light, I could not find any other condition, and therefore put the kidney back without removing it. After drainage three such patients recovered promptly from their symptoms, but not quite as rapidly as those cases in which I removed the kidney. One had a long and tedious convalescence. Her general health improved; her irritable bladder remained, and there was a little pus found in the urine occasionally. I insisted on her waiting until we saw what nature would do for her, and that if her condition should grow worse, we would take the kidney out. After eighteen months the sinus closed, the symptoms of irritable bladder disappeared, and she is now a well woman.

Most of my surgical work was done in connection with cases that were far advanced, and in which there was a large quantity of pus in the kidney. In these I have followed the practice of the last speaker, namely, that if the condition of the patient justified a prolonged operation, I invariably took the kidney out, particularly if there was great destruction of kidney tissue. If there are many abscesses and different pockets, I invariably take the kidney out. In a few cases the condition of the patient has been so desperate that I have simply drained, but have had to take the kidney out months afterwards. I think that is justifiable in these desperate cases, because if we prolong the operation, we may turn the tide against them, but if we let them recover temporarily from their sepsis and broken-down condition, in a few weeks they can be placed in better condition and extirpation of the kidney can be undertaken safely then.

In answer to the question asked by the last speaker—Why would not drainage of the kidney in many of these cases be able to take care of the tuberculosis?—I will say that if you are rid of the pus, the drainage may take care of the ureter afterward. In some cases, however, it has been advocated to take out the ureter. In a case I had a couple of years ago, which was one in which

the patient was in a desperate condition, and still I felt I would take the ureter and kidney out, but before I got through with the kidney, the enucleation being so difficult, the patient collapsed, and it looked as though she would die on the table. I did not take out the ureter. I bared it down for a couple of inches, passed a safety-pin through it, brought it through the loin, and said if she lived I would take it out later. That patient recovered slowly. The ureter discharged freely for three or four months, and she recovered after a year or so, in that the irritable bladder and ulcers from the bladder disappeared. The patient put on fifty-two pounds of flesh, and she is now well. Something did good for that ureter.

THE TOXEMIA OF PREGNANCY AS OBSERVED BY THE GYNECOLOGIST.

BY

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THE success of the physician and surgeon at the present time depends upon proper appreciation of the personal equation of his patient. His advancement will be in direct ratio to his ability to grasp the individual resistance, and in the treatment of disease he will be governed accordingly. This fundamental thought serves as a foundation for a consideration of the lowered resistance found in many pregnant women, which is caused by a disordered condition of the blood, and has been well termed the "Toxemia of Pregnancy."

The advancement made in the knowledge of these complications becomes evident when the scant literature found at the beginning of the last century is compared with that existing at the present time. This condition was then briefly referred to as pernicious vomiting, or the fits of pregnancy, with little knowledge of the etiology. As a result of each succeeding year of research a foundation has been laid which will result in the prevention to a large degree of these much-dreaded complications. There still remains much of practical importance which has not received the attention warranted by our present knowledge.

It is not within the province of this paper to enter deeply into a consideration of the etiology of the various forms of toxemia and their apparent relationship, but the object is to call attention to the lowered resistance of the pregnant woman as a result of their presence, and emphasize the great necessity for care and attention throughout the pregnant state. In order to make the subject clear a brief consideration of the various forms of toxemia is necessary. It may be defined as a state of the blood caused by either an insufficient action of the liver, or by some disturbance in the earlier processes of metabolism as a result of the pregnant condition. We include in this subject not only the acute toxemias, as pernicious vomiting and acute yellow atrophy according to the grouping by Ewing, but also the milder manifestations. It is characterized frequently by symptoms mild in character, but mark-

ing occasionally serious and even pernicious affections, such as acute yellow atrophy, pernicious vomiting and eclampsia—conditions which, without doubt, are closely related. The fulminant type, as expressed by acute yellow atrophy, is undoubtedly toxemic in its origin.

Less attention has been paid to the study of hyperemesis and other disturbances during pregnancy than to eclampsia, a name which suggests at once to us convulsive seizures. All cases of pernicious vomiting are not autotoxic, but that a large proportion of them are due to toxemia cannot be disputed at the present time. It is true that it may be the result of local disease, for example, an ulcer of the stomach, gallstones, tubercular peritonitis, acute lesions of the kidneys causing suppression of the urine, or even obstinate constipation. Local disease of the uterus, such as endocervicitis or displacement, may induce persistent vomiting. After a careful examination, the result of which eliminates these local lesions as etiological factors, we are safe in considering its origin toxemic.

Ewing and Wolf believe that our present knowledge points to a single or to closely related types of metabolic disturbance as the fundamental factor in all forms of the toxemia of pregnancy. There can be no doubt that the mild and fulminant cases occurring during the early months are similar in nature, and that many cases in which persistent vomiting occurs early in pregnancy develop preeclamptic symptoms in the later weeks. It is of interest to note here that the pathological findings in some cases of pernicious vomiting and acute yellow atrophy differ so little from eclampsia that it would seem that whatever is finally determined to be the cause of one, must have an important bearing upon the other. We know that these convulsions are but the climax of a condition which, as a rule, has been gradual in its development, and in the majority of cases gives timely danger signals, which if appreciated and properly treated will greatly lower the present mortality.

We are all familiar with the many theories which have been suggested as the cause for these complications. The theory which seems the most reasonable, and the one which is becoming more widely recognized, was first advanced by Fehling. He believes the intoxication is of fetal origin, and that the excretions of the fetus are carried through the placenta into the blood of the mother. Examinations conducted by Dienst lead him to believe that those who are searching in both the organs of the mother

and the fetus are nearing the truth. Autopsies upon fetuses from eclamptic mothers shortly after delivery showed chronic nephritis, parenchymatous inflammation of the heart and liver, and universal thromboses. The maternal blood contained an abnormal amount of fibrin. He regards the diminished eliminating power on the part of the mother leading to the retention and absorption of the fetal waste products as the primary cause of eclampsia, and believes that all conditions which interfere with the eliminative organs tend to precipitate an attack.

Mowton favors the fetal theory as the cause of eclampsia. He says that autopsies reveal to us certain changes in the tissues of both mother and child which can only be explained through the presence of an abnormal amount of toxin in the blood. The excretory organs of the mother having undergone changes consequent upon pregnancy, are impaired in their capacity for performing their work in a normal manner. If they are able to perform their functions in this impaired state the subject remains well, but should they be unable to do so a surplus of toxins collect in the blood and eclampsia results. This theory is supported by two facts: first, that eclampsia occurs more frequently in twin pregnancies; second, that the death of the fetus *in utero* diminishes the symptoms of threatened eclampsia. He does not believe that postpartum eclampsia refutes the fetal theory, but claims that the changes resulting from the toxemias remaining in the maternal organs are sufficient to produce it.

It remains to be learned whether these disturbances are caused by an excess of poison eliminated from the fetus, to the effect of these poisons upon the liver and the earlier processes of metabolism, or to a deficient action of the excretory organs of the mother rendering them incapable of the extra work thrown upon them as a result of the pregnant condition. This theory has been disputed, but it seems the most reasonable of all. How the child can grow and develop within the uterus without disposing of the end products of metabolism in some way or other is a problem difficult to understand. Disturbance of the organs of excretion in the child immediately after birth results seriously. If this be true, then, certainly there must be some provision for these functions during intrauterine life. This being acknowledged, a good working basis is established which suggests a definite line of treatment.

The first and most important factor in the consideration of these complications is to rid our minds of the idea that the milder symp-

toms are physiologic and to be expected. There can be no doubt that pregnancy becomes a pathologic state in many women. This may sometimes be attributed to a susceptible condition of the nervous system, but in the majority of cases is doubtless due to the inability of the liver and excretory organs to perform the extra duties imposed upon them during the pregnant state. That the degree of toxemia varies is unquestionably true, and that it is present in a great many pregnant women to a slight degree is demonstrated by many symptoms. The blood during pregnancy is often in a state of anemia. That these changes are due to toxemia has been disputed on the ground that pregnancy is a physiologic and not a pathologic condition. That pregnancy is physiologic should be true, but owing to the influence of many factors, such as civilization, climate, diet, and the like, it must be admitted that the pregnant woman is seldom in a state of perfect health, and that her condition leans toward anemia and poverty of blood, and must be treated accordingly.

The urine has long been looked upon as the best index in calculating the severity of the toxic process. Many cases of severe toxemia occur, however, without the presence of marked urinary symptoms, and sometimes the danger is not revealed in the urine until long after the presence of other clinical signs which should have directed our attention to the danger of toxemia. Chemistry will undoubtedly come to our assistance in the detection of substances which are present early in the disturbance. The amount of ammonia nitrogen and the proportion it bears to the total nitrogen, the tests for leucin and tyrosin, acetone, diacetic acid, and the sulphates are now being carefuly estimated. It remains to be proven whether these tests will give us an idea as to the severity of the toxic process. Edgar, in a paper read before the Medical Society of the County of New York, states that in his opinion a study of the urine has not only a diagnostic value, but that it also points the way to prognosis and treatment. During pregnancy urinalysis enables one to determine that the urine is nontoxic in character; that a given case of persistent vomiting is toxemic in its character; that a patient is in the preeclamptic state of the toxemic or nephritic variety; that a given eclampsia is nephritic or toxemic; and, finally, that after delivery it is possible to forecast the tardy or prompt recovery from a toxic or nephritic condition.

The urine of a normal pregnancy should not be persistently small in quantity. The urea output should not be persistently low, and it should not contain albumin, casts, or excessive quanti-

ties of indican. The persistent vomiting of pregnancy is with few, if any exceptions, toxemic in character, as shown by faulty urinary excretion of nitrogen. The fact that the urea output is lower than normal in a large percentage of cases is not without significance. Such examinations of the urine necessitate the aid of the chemist, and while such care is unnecessary in every pregnancy, there are times in the presence of clinical symptoms pointing toward toxemia when it is very essential to have a thorough knowledge of the clinical constituents of the urine. We should, however, consider the analysis of the urine as being only part of an examination, which includes the other organs of excretion and the general condition of the patient as well.

In considering this subject of toxemia, the object is to emphasize the fact that these manifestations, such as pernicious vomiting and eclampsia, are but the result of conditions which, as a rule, have gradually developed, and that previous to the onset of the serious symptoms by which they are characterized, there has been a gradual development, which continues to the serious stage if allowed in some women, while in others, owing to a more powerful resistance, it is held in check, but that it may be severe enough to seriously impair the process of metabolism, and thus render the patient more susceptible to many other complications which frequently accompany pregnancy and the puerperium, is beyond doubt.

PUERPERAL SEPSIS.

That many dangerous complications are liable to develop after delivery in these cases, as a result of a previous toxemic condition, is a fact that has not received the attention which its importance merits. It would seem that the additional burden thrown upon the eliminating organs, particularly the liver in its effort to dispose of the large quantities of waste products which find their way into the circulation as a result of the rapid changes in the uterus, still further lowers resistance. This being so true in the severe forms of toxemia, its consideration becomes equally important in cases of the milder type. Is the resistance of the patient able to care for this additional load? In the opinion of the writer this is a matter which depends largely upon the personal equation, and it is at this time that good resistance is so necessary. Jordan, in an excellent article upon "The Toxemia of Pregnancy," has emphasized this danger.

There are many cases which do not have persistent vomiting, nor do they develop eclampsia, and yet present many toxemic

symptoms, such as headache, lethargy, insomnia, irritability, nausea, visual disturbances, and slightly elevated blood pressure, with perhaps some of the urinary disturbances above indicated. These are mild cases and respond to treatment, which consists of elimination, rest, and diet. If neglected, symptoms of this kind may become serious in their manifestations, and there is much greater danger of infection at delivery as a result of the lowered resistance than when the eliminative organs have been functionating normally throughout pregnancy. These facts should be kept in mind when delivering a woman who gives a history of a stormy time throughout her pregnancy, and great care should be taken, not only at the time of delivery, to prevent sepsis, but throughout the puerperium careful attention should be given to the proper involution of the uterus and its supporting ligaments. It is apparent to the gynecologist, in reviewing the history of his patients, that subinvolution of the pelvic organs frequently follows pregnancies which have been accompanied by signs of toxemia, and that its importance as an etiological factor should not be overlooked.

While there are many conditions bearing an important relationship to infection, the writer has observed for a long time that cases presenting the milder symptoms of toxemia during pregnancy were slow to convalesce after delivery. We have all seen cases of severe infection under the most favorable surroundings, and were at a loss to understand the cause. We know that virulent organisms swarm upon the vulva, that they are present in the uterus itself in cases which run an apparently normal course. This can only be explained by the fact that the individual resistance is sufficiently strong to withstand the attack of these organisms in one case, but for some reason is unable to do so in another. In the graver forms of toxemia we are surprised if infection of some kind does not occur. This being true, it is easy to understand why it may occur oftentimes when the toxemia previous to delivery has been but moderate in its severity, and doubtless overlooked by the obstetrician.

GALL-BLADDER COMPLICATIONS.

When we consider the degree of importance which has been given to an insufficient action of the liver as a causative factor in the toxemia of pregnancy, it is surprising that so little can be found in literature concerning affections of the bile passages during pregnancy and the puerperium. It seems reasonable that the

extra work thrown upon this organ may impair its function and predispose to local changes as the result of the added stress. When the frequency with which women suffer from gallstones is considered, together with the fact that many reliable observers are convinced that pregnancy and the puerperium favor the occurrence of biliary colic, it is strange that so little attention has been paid to the history of patients suffering from these complications. The observations of the writer in a number of cases of cholecystitis lead him to believe that in many of these patients it has developed in the presence of toxemic symptoms, and that complications such as cholecystitis and empyema of the gall-bladder have been the direct result of an overworked liver caused by the toxins of pregnancy; in other words, lowered resistance plus the presence of bacteria. In analyzing the history of several cases, marked toxemic signs were found, such as nausea, vomiting, headache, and the like, at some time during the course of pregnancy.

If we accept the claim of Bouchard that the blood during pregnancy is toxic, we must necessarily look upon the liver as an essential factor in eliminating these poisons from the system. In ordinary health this organ in many people is scarcely capable of performing its duty. When we add the toxins of pregnancy to those of ordinary metabolism, it is not surprising that the liver cells become impaired and unable to perform the extra work imposed upon them. Unfortunately, we know but little of the pathology in the earlier changes, because the patients recover and autopsies are not obtainable. We do know, however, that degeneration and necrosis of the parenchyma of the liver is found post-mortem in patients dying from eclampsia, acute yellow atrophy, and similar conditions. It certainly is not necessary for necrosis of the liver to occur before we admit the presence of changes which may be sufficient to interfere seriously with its function.

The action of the liver cells is necessarily below normal, and the bile eliminated under such conditions is an unknown quantity. It has been shown that living organisms are eliminated with the bile, and in that way may be transmitted to the gall-bladder, where, if a suitable field for incubation is found, complications may result. This may be an abrasion of the mucous membrane, or their development may be due simply to the lowered resistance of the local structures. The severity of the complications may vary from a simple cholecystitis resulting in the formation of gallstones to an empyema of the gall-bladder. Research has

demonstrated that bacteria are present in the bile in cases operated on for gallstones in a large percentage of the cases.

We must admit that the general conditions which determine the formation of gallstones is as yet uncertain. There is no definite evidence that gallstones are formed by derangements in metabolism which are not accompanied by the presence of bacteria in the gall-bladder. On the other hand, we know that the cholesterin of the bile can be increased by local irritation without the presence of infection, and it is quite reasonable that local conditions, sufficient for such increase, may arise from disturbed metabolism. It is difficult to explain the reason for the development of calculi in intrauterine life as evidenced by their presence in still-born infants. The alimentary canal in the new born is sterile, and it would seem that the only logical reason is stagnation of bile. After all, while a disturbance in metabolism may not be an essential factor in the production of gallstones, there is no evidence that such disturbances may not modify the composition of the bile, and thus play an important part in the predisposition of such complications.

According to the statistics of Schroeder, gallstones occur almost five times as often in women as in men, and ten times oftener in women who have borne children than in those who have not. In his autopsies, which are under the direct supervision of Recklinghausen, 90 per cent. of the women who had gallstones had borne children. Articles and case reports by the following men cover the literature of cholecystitis complicating pregnancy and the puerperium to the present time:

Vineberg refers to fifty-one cases of biliary colic collected by Berline-Hering, in eleven of which the first attack occurred during pregnancy. In four the first attack followed an abortion, and in the remaining thirty-six cases the first attack followed labor in periods varying from one day to one month. Schauta believes that pregnancy and the puerperium favor the formation of the gallstones. Naunyn also concludes that pregnancy favors the formation of gallstones. He believes it does this by the mechanical obstruction to the flow of bile through the ducts as a result of the restricted movements of the diaphragm. Skutsch attributes the attack of biliary colic to the change of abdominal pressure, thus favoring the passage of calculi from the gall-bladder into the ducts.

Vineberg says: "Is it not likely that the outbreak of acute cholelithiasis during the puerperium is favored by not allowing

the parturient woman to have a movement of the bowels during the first three days of the puerperium and by keeping her in the dorsal position for at least the same period?"

Potocki reports the following case: Patient, age 33, strong and robust; during the ninth month of pregnancy she was seized with pain in the right hypochondriac region, accompanied by nausea, vomiting, tympanites, high temperature, and a tender swelling in the region of the gall-bladder; labor began, and he decided to deliver her before operating. A cholecystotomy was performed the following day, and gall-bladder found filled with pus and quantities of minute calculi.

Eierman reports a case of cholecystitis following labor, accompanied by jaundice and frothy urine. No stone was found. He says this complication is not infrequent, and he attributes it to the pressure of the uterus and the disturbance of the circulation during pregnancy, leading to stasis of the bile with possible formation of stone. After birth, the pressure being removed, the stone started down the duct. Davis reports a cholecystectomy in a fifth pregnancy at seventh month. The history of gall-bladder disease in this case antedates the first pregnancy and is of no importance in the consideration of this subject.

Willien reports a case of cholecystotomy occurring in the third month of pregnancy, stones being removed from the common and hepatic ducts with recovery of the patient. Vineberg reports two cases of cholecystotomy performed nine and ten days, respectively, following delivery. Both cases were thought to be due to sepsis by the attending physician, owing to the severity of the symptoms and the absence of the classic signs of cholecystitis.

Christian refers to two cases of cholecystitis; one occurred four days after delivery, and the second eight days before delivery, which began at the usual time. Doleris reports a case during pregnancy. Rose, Pinaud, Barrillion, Villard and Gelibert, Rudaux and Van Engelen report cases. Dreyfus Brisac mentions two cases reported by Willemin, one a woman who had an attack of biliary colic after two labors which were nine years apart, and another in whom an attack of cholecystitis followed each of four labors. Attacks of this character did not occur in these women at any other time. Huchard gives a résumé of twenty-two cases of biliary colic occurring during pregnancy and the puerperium.

We note, in reviewing the histories of the patients above referred to, that the only reasons which have been advanced for the development of these complications are constipation and mechani-

cal obstruction to the outflow of bile. Toxemia is not referred to as an etiological factor, and no knowledge is gained from the history as to the presence or absence of toxemic symptoms. That cholecystitis occurs during pregnancy and the puerperium as seldom as the literature would lead us to believe is doubtful. That many cases are not recognized, but diagnosticated as some other condition, especially during the puerperium is evident. Owing to our lack of knowledge upon this interesting subject, is it not wise to direct our attention to the necessity for greater care in the study of this complication when it occurs. During the puerperium much greater activity of the liver cells occurs in order to dispose of the additional excrementitious material incident to involution. In this effort it is quite reasonable that the bile may lose some of its protective qualities, and it is true, here as elsewhere, that any factor which lowers the normal resistance may increase the susceptibility to infection. It seems strange indeed that these complications are not more frequent when we realize the large majority of women who struggle through pregnancy unaided, and with little consideration for the necessity of this extra effort on the part of the liver.

A careful review of the history from the beginning of the pregnancy should be made to determine if possible what the important factors are in the etiology, and by what means they can be avoided. It is with the hope of stimulating further research in this direction that the following cases are reported:

CASE I.—Mrs. F., referred by Dr. Stevenson. This patient gave the following history: age 23, primipara, family history negative. health had always been good until she became pregnant. States that she never had pain in the abdomen of any kind. She began to vomit early in pregnancy, and continued at intervals during the entire course, suffered considerably from headache during the latter months; limbs and face were badly swollen, and states that she was miserable from the beginning until the end of pregnancy. No satisfactory report as to the condition of the urine could be obtained. Three days after delivery she was seized with severe pain in the abdomen accompanied by elevation of temperature. This attack continued for some days and finally subsided. Since this time she has had recurrent attacks of severe pain in the region of the gall-bladder, and has never been free from pain at any time since the first attack. She is unable to perform work of any kind. Examination five months after delivery revealed the following conditions: Great tenderness and pain on slightest

pressure over region of the gall-bladder. Right rectus muscle rigid. On account of the muscular rigidity and elevation of temperature the diagnosis of empyema of the gall-bladder was made. She entered St. Francis' Hospital and was operated upon two days later. The gall-bladder was distended, containing at least three ounces of pus. Two small gallstones, so friable that they crumbled upon removal, were present. Gall-bladder drained. Recovery.

CASE II.—Cholecystitis developing on the 20th day of the puerperium. Mrs. M., referred by Dr. N. R. Graham; history as follows: age 28, multipara, fourth pregnancy. Always in good health until March, 1907, when she was sick for several weeks. She was then in the seventh month of pregnancy. The nature of her illness at that time was hard to determine. She recovered from this illness, and was apparently well until twenty days after delivery, when she was seized with severe pain in the right upper quadrant of the abdomen. The pain has been continuous since that time; upon examination a distended gall-bladder was easily outlined. Cholecystotomy, June 18, 1907. Upon opening the abdomen all evidence of a recent inflammatory process was present, the omentum covered, and was glued to an inflamed gall-bladder; sixty-seven stones were removed, gall-bladder drained. Recovery.

CASE III.—Mrs. H., age 36; three children. This patient has always had a stormy time during her pregnant condition. Vomited during the early months, and had all the premonitory symptoms of eclampsia during the latter weeks—headache, swelling, high blood pressure, and low urea output. During her second pregnancy three years ago she developed symptoms of cholecystitis. An acute attack occurred five days after delivery, lasting for one week. Since that time she has had recurrent attacks of considerable severity. While we have not been permitted to verify our diagnosis by operation in this patient, gallstones are undoubtedly present.

CASE IV.—Mrs. F., referred by Dr. Rohan, age 38. This patient gives a history of no illness until her first pregnancy ten years ago. During the latter weeks of pregnancy many toxemic symptoms occurred, such as headache, swelling of face and extremities, and the like. Six days after delivery she became very ill, and her trouble was diagnosticated as peritonitis. The pain was most severe in the upper right quadrant of the abdomen, and

the subsequent history justifies the diagnosis of acute cholecystitis, which may have been complicated by peritonitis. She recovered from this attack, but since that time has had recurrent attacks of severe pain, accompanied by jaundice. When seen by the writer a diagnosis of cholecystitis, together with a stone in the common duct, was made. Patient was operated upon September 5, 1906. The gall-bladder was found surrounded by many dense adhesions, contracted, walls very thick, and filled with calculi. A large stone was located in the lower end of common duct. The gall-bladder was removed. In its removal an accident occurred which may be worthy of mention. Owing to the dense adhesions and displacement of the organs, it was impossible to recognize the structures about the base of gall-bladder, and in the effort to tie off the gall-bladder the ligature was carried around the lower end of the hepatic duct, and almost two centimeters of the common duct was removed before the accident was discovered. However, after freeing the lower end of the duct it was brought up and sutured to the hepatic duct, end to end. A rubber drainage tube was carried to the line of approximation and held in place by suture. Patient made a good recovery.

CASE V.—Through the kindness of the attending surgeon, Dr. Ely, under whose service this patient came, I am permitted to report it. Mrs. P., age 22, primipara, health good previous to pregnancy. During first four months she suffered continuously from nausea and vomiting. Health was not good during whole period of pregnancy, especially during the latter weeks. She was very thirsty, had no appetite, and suffered from headache. Her labor was uneventful. Six days after delivery she was seized with severe pain in the region of the gall-bladder, which has continued until her admission to the hospital, which was four weeks from beginning of the attack. She presented the following symptoms upon admission: complains of severe pain in upper right quadrant of the abdomen, muscular rigidity very pronounced, and great tenderness over the region of the gall-bladder. Temperature ranges from 100° to 104°; no jaundice. Diagnosis, suppurative cholecystitis. Operated upon by Dr. Ely, April 8, 1907; gall-bladder distended and full of pus; but one very small stone of recent formation present; gall-bladder drained; recovery.

On account of an insufficient history, the lack of definite knowledge as to the urinalysis and careful observation by the obstetrician in these cases, proof is somewhat lacking that the gall-bladder complications were a result of toxemia. The symptoms

which occurred during the course of pregnancy in these patients can scarcely be attributed to the presence of gallstones or to disease of the bile ducts previous to conception, because the patients were in perfect health before pregnancy occurred. The occurrence of symptoms as above related in primiparæ is strong evidence in favor of a toxemic origin, because we know that manifestations of this character are most apt to occur during the first pregnancy. The stones present in Cases I. and V. were so small and friable that they were doubtless the result of a recent infection.

PUERPERAL INSANITY.

To the neurologist properly belongs a consideration of the psychoses complicating pregnancy. It is only with a desire to emphasize the necessity for a proper understandnig of the toxemia of pregnancy as an etiological factor that it is here referred to. Through the kindness of Drs. McKennan, Diller, and Hersman, neurologists to the psychopathic department of the St. Francis Hospital, an unusual opportunity has been afforded the writer for the study of puerperal insanity. While the prognosis for recovery from the mental state is better in puerperal insanity than in other psychoses, the risk of death is greater than in any of the acute forms of insanity. Eight per cent. of these patients die during the attack.

Jones, in a recent report, says that out of 3,500 admissions 259 patients were received suffering from insanity, for which pregnancy, parturition, the puerperal state, or lactation were assigned as the cause—a proportion of 7.4 per cent. These are compriesd as follows: fifty-six were from pregnancy, a proportion of 20.62 per cent.; 120 occurred during the puerperium, a proportion of 46.33 per cent.; 83 were associated with lactation, a proportion of 32.43 per cent., yielding a ratio among these cases of four puerperal, three of lactation, and two of pregnancy. During the year 1900 the births were given as 132,652, which yields an approximate ratio of one case of puerperal insanity admitted into an asylum for every one hundred births. Other authorities, speaking generally, state that the ratios may average from one in four hundred to one in seven hundred births.

Insanity must ever be considered as a product of two predisposing factors, stress and heredity, and it must be understood that, in order to have a case of puerperal insanity, there must be an underlying neurotic condition. The question then arises, what are the causes precipitating the attack? In searching the

literature it seems to be the opinion of most men that insanity occurring during pregnancy is due to some profound effect upon the nervous system as a result of the pregnant condition. It has been attributed in some instances to toxemia, but so far as I can learn there has been no systematic study made in a large series of cases showing a careful urinalysis, or with any particular attention to other signs of toxemia which might have existed previous to or concurrent with the attack. In cases occurring after delivery, and developing during the first seven or eight days of the puerperium, there are many factors to be considered. Shock, exhaustion, loss of blood, and the element of infection must all be taken into consideration.

As a causative factor, we must ever bear in mind that the additional stress placed upon the eliminative organs of the mother after delivery, in order to care for the morbid and effete material which is taken into the maternal circulation at this time, is of great importance. If they have been overworked previous to delivery, perhaps almost to the point of insufficiency, it is easy to understand that the additional burden imposed upon these organs, increasing the already toxemic condition, may produce a profound effect upon the nervous system of women where the predisposition is present.

As a stimulant to others who may have the opportunity of making careful observations and further study along this line, a brief report *en résumé* concerning twenty-five cases of puerperal insanity is submitted. The nervous symptoms developed in all of these cases after delivery. All were under thirty years of age, eight below twenty-five. Ten, or 40 per cent. of this number, were primiparæ. In but three cases was there a history given of difficult delivery. The examination of the urine made after their admission into the hospital was incomplete, but albumin was found present in twelve, or almost 50 per cent. of these cases. It has been difficult to elicit a good history as to the condition throughout the pregnant state, but in ten of the patients referred to undoubted symptoms of toxemia, such as nausea, vomiting, headache, general malaise, and the like, had existed for some time previous to delivery. In eight cases which gave other signs of toxemia previous to delivery albumin was present. As in some instances the urinalysis was not made until some time after the beginning of the attack, it is possible that the urine may have contained albumin at an earlier date. I am indebted to Doctors Nealon, Jahn, and Barrett, resident physicians in charge of the

psycopathic department, for their kindness in securing the history of many of these patients.

Nathan Raw has observed albuminuria in 62 per cent. of patients having puerperal insanity. In some cases it quickly disappeared; in others it persisted for weeks. Sir James Simpson in 1857 recorded several cases of puerperal insanity. He says: "As far as my experience of puerperal mania goes, albuminuria precedes and attends the first attack of puerperal insanity in a large proportion of cases, but perhaps not so frequently and so constantly as it precedes and attends upon attacks of puerperal convulsions. I have found it present in eight out of ten cases of puerperal insanity at the beginning of the attack. The coaguulability of the urine in puerperal insanity generally disappears more speedily than in puerperal convulsions. The fire goes on burning in these cases of insanity after the lighted match is merely applied and the strong, morbid clockwork runs on, as it were, after the key that wound it up is withdrawn. I have seen all traces of albumin disappear from the urine in fifty hours from the onset of the malady."

When Simpson was asked, "What is the special morbid agent in the blood which, when accumulated there in sufficient quantity, produces puerperal insanity?" he replied, "We know not yet, and will not know until pathological chemistry, which is still in its infancy, has grown and advanced to an extent and certainty infinitely beyond its present limited bounds."

The report of two cases taken from this series assists in emphasizing the important points.

CASE I.—Mrs. N., age 22, primipara. Patient entered the hospital under the services of T. M. T. McKennan. Her appearance would suggest a predisposition to mental disturbances. Her family physician, Dr. R. L. Ertzman, related the history as follows: During the early months of pregnancy she presented no unusual symptoms. During the last two months, however, she was not so well, and complained of headache the greater part of the time. Her pulse was very rapid and of high tension. No albumin was found at any time, but no further examination of the urine was made. The delivery was uneventful. After delivery she continued to have a rapid pulse, and on the third day the temperature rose to 102°, pulse became very rapid, and she was cyanotic. Under stimulation she improved, but during the first week after delivery several of these attacks occurred. On the eighth day she began to show symptoms of mental disturbance.

which gradually grew worse until her admission to the hospital two weeks later. At this time, six weeks after admission, she is improving mentally and physically.

CASE II.—Mrs. S., age 25, primipara. Entered the hospital May 9, 1907, coming under the service of Dr. Hersman. Her husband gave the history as follows: Considerable vomiting in the early weeks of pregnancy. Six or seven weeks before delivery she began to feel very miserable. Was short of breath, face and limbs swollen, restless at night, and suffered from severe headache. Her delivery was difficult, and she seemed much exhausted afterward. Her convalescence seemed slow, and she was very nervous and irritable. About the eighth day after the birth of the child she became delirious and has so continued until the present time, which is about five weeks after delivery. She does not recognize any one. Temperature varies from 99° to 102°, and pulse is extremely rapid. Careful examination of the pelvic organs reveals no cause for the above symptoms. The urine is scant, of low specific gravity, and contains albumin. Her condition grew rapidly worse, and she died seven days after admission. Her death seemed due to the effect of a profound toxemia in connection with the exhaustion incident to delirium.

In this patient toxemia unquestionably began weeks before the termination of labor, and if she had been placed upon proper treatment at that time it is probable that her life could have been saved; moreover, it is quite possible that the nervous symptoms would have been avoided. In the report of Jones the mental breakdown followed a first confinement in 33 per cent. of the cases, but he lays little if any stress upon the condition of the urine or other toxic symptoms existing before the onset of the psychoses.

When we consider that so many cases of puerperal insanity occur in primipara, it should at once attract our attention. We have learned that it is during the first gestation that the various forms of toxemia are most likely to occur. Also that in many of these cases of insanity there has been albumin in the urine, and many other signs of toxemia. For these reasons it is doubtless true that the non-eliminated poisonous materials circulating in the blood cause a disordered state in the cerebral cortex, with constant mental disturbance. The point in question is, if these signs of toxemia are recognized by the obstetrician several weeks before delivery, could not these complications, which are among the saddest in our experience, be sometimes prevented? Is it not the duty of the physician when caring for a pregnant woman who

possesses an unstable nervous organization, to keep her as near her own normal as possible, no matter how far it may deviate from the proper standard?

In thus considering the relationship of these toxemias to the various complications above referred to, we place greater responsibility upon the obstetrician. It becomes evident that his aim should be not only to prevent the development of the severe forms of toxemia, but to so guide his patient that she will be as free as possible from even the mildest type, for by so doing he will have greatly contributed to a normal puerperium and a safe recovery to health. Just as the surgeon calculates the ability of his patient to withstand operative measures, realizing the necessity to operate only when his patient has been properly prepared, if possible, and is at the point of strongest resistance, so must the obstetrician of the future realize that the resistance of his patient must be kept at the highest possible point in order that she may pass safely through the dangers of delivery and the puerperium.

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DISCUSSION.

Dr. E. Gustave Zinke, Cincinnati.—No criticism can possibly be made of the paper presented, and I would endorse every word the author has said; but, in listening to his paper, I was vividly reminded of many articles that have been written on this subject during the past decade; all of them searching for the particular substance or germ that may produce puerperal convulsions. That it is a toxemia, no one denies. It is of very little practical value as to what the particular poison or poisons may be. There are, probably, quite a number of them. While obstetrics is probably better taught to-day it is a child that is generally neglected by the average practitioner. A woman who becomes pregnant knows little of the dangers that may beset her path during the period of gestation. Few pregnant women consult a physician in time and, very often, it must be admitted, when a physician is consulted in time, he does not give the case the necessary attention. There is no doubt in my mind that, probably, nine-tenths of the cases of pregnancy toxemia could be forever eliminated if the physician consulted would do as he should by the patient. There is so much to be done for these cases in the way of prophylaxis.

It is unnecessary for me to go over the treatment of puerperal toxemia, because you are all familiar with it. But what must be brought home to every one, physician as well as patient, is that the pregnant should have the necessary care from the beginning to the end of gestation, and until she is able to be up and about after her confinement. This is what we must impress upon the young practitioners; this is what we should preach to the public.

Dr. Joseph Price, Philadelphia.—Many years ago I was practically greatly interested in this subject, and just what our distinguished friend and teacher has said impressed me then because I then had an opportunity publicly and privately of studying the subject, and I simply rise to express myself in regard to the race suicide that goes on along these lines with respect to the

intention of the general practitioner and the inclination of the unpregnant mother. We know how often women lose their first child by all sorts of neglect and carelessness and save the second. We have had sad experiences in that regard. I recall very well a small epidemic of emptying of the uterus in certain communities, where it was thought unnecessary in the case of childbirth. Now the physician makes frequent visits to the pregnant mother; the laboratory is made use of for analyses, and the woman is carefully managed; she is induced to live an out-door life as much as possible; advanced steps in therapeutics are taken, so that now practitioners are able to save both mother and child. I speak of this from a race suicide standpoint. Those conditions have been the means of distressing lots of prominent people, people who have a right to claim an heir early in life. I can recall many patients whom I have seen in consultation, who had many troubles that antedated their pregnancy, such as constipation. These women were managed fairly well while they were single, but badly managed after they got married, and had changed their homes. For instance, I remember a prominent young woman of great wealth who had diabetes, and the question came up whether it was safe for her to conceive. I was called to determine that question. In such cases I settle upon the child always. The woman was watched with great care by a splendid clinician living at Bryn Mawr, who managed her skilfully, and at the proper time made high application of the forceps and delivered her of a child, who is now alive and the joy of a large and influential family. She was a powerful and well-built woman. I have had a number of experiences of that nature, which demonstrated that these troubles can be managed, and the women delivered safely. Often these women are neglected by the general practitioner, who simply practises meddlesome midwifery with rule of thumb or with jack-knife fashion.

Dr. John A. Lyons, Chicago.—I have had two or three cases of puerperal sepsis and not one of them came to me in time to do any good. Usually they are hospital cases.

Dr. O. H. Elbrecht, St. Louis.—I would like to ask Dr. Huggins what distinction he makes, if any, between puerperal toxemia and the toxemia that causes hyperemesis gravidarum? If I understood him rightly, he did not draw a line between these two conditions, and I wondered if he put both in the same class.

Within the past year an article appeared in the Annals of Gynecology, in which the author put these two conditions in the same class with the eclamptic, but up to that time I believe hyperemesis gravidarum has not been generally considered as a toxemia of the same type as that which causes eclampsia. The essayist directed special attention to the liver, and I am glad he has centered his thought on this organ as a causal factor, for the splendid work done by Williams, Ewing, Zweifel, Schroeder and others has done much towards directing observations that way. All of us have had the experience of having eclamptics with normal urine

up to the time of delivery, and most of us feel satisfied that the urine is not the place to look for the etiology but rather to regard the albumin, casts, and ammonia nitrogen as acute signs of the toxemia which has its origin elsewhere. The urine in cases of hyperemesis gravidarum gives us about the same picture. But hyperemesis gravidarum, if that is what Dr. Huggins is aiming at, is but one of the troublesome symptoms we have to contend with, particularly in genuine cases. Then a marked distinction should be made between hyperemesis gravidarum and persistent vomiting of pregnancy.

A sharp classification should be made between the genuine cases and those of persistent vomiting during pregnancy of reflex or neurotic origin, which, though rather stubborn, subside under treatment and never assume the serious phase of the really dangerous type. The type to which I refer is the kind where vomiting continues day and night or any time. In the paper the essayist has taken into this class cases of insanity during pregnancy. Unquestionably the temporary insanity is due to a toxemia, but is it a symptom of the same toxemia that causes hyperemesis gravidarum? Some German author, whose name I cannot recall, has shown that insanity of pregnancy is usually only a prelude (or symptom) of toxemia, and eclampsia often follows. In the last few years we have heard a great deal about syncytial cells as the probable etiological factor in eclampsia. They are distributed in the lung, kidney, brain and liver, and as they are most prominent in the liver it is accepted as a change of metabolism in the liver, and that they migrate from this organ via the circulation. We are still in a very uncertain stage as to the etiology of these toxemias, and I hope Dr. Huggins, in closing, will differentiate them.

Dr. William H. Humiston, Cleveland.—In these severe cases that have resisted other methods of treatment, I have had good success with cathartics and by using stomach lavage twice daily, with rest in bed and a saline solution administered per rectum.

Dr. Huggins (closing the discussion).—In reply to Dr. Elbrecht, I certainly would make a distinction between persistent vomiting and hyperemesis gravidarum. I did not enter into a consideration of the various conditions of toxemia and of the different toxemias, whatever they may be. The point I would make is this, that these troubles, from a clinical standpoint, are evidently interrelated, and if we can have these women under our care early enough, or at the very inception of the trouble, they would not have eclampsia; they would not have acute yellow atrophy and the like. These women should be carefully watched and treated, and in so treating them we would undoubtedly avoid not only these complications in some of the worst cases, but in many of the mild ones, such as I have referred to in the paper.

PRESENT TREATMENT OF PUERPERAL SAPREMIA AND PUERPERAL SEPSIS.

BY

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THE treatment of puerperal sapremia may be said to have been pretty definitely settled. The accepted treatment is neither experimental nor is it based on theoretical deductions, our knowledge of the subject strongly indicating the removal of all decomposing material from the uterine cavity. When there is an offensive discharge from the os uteri, and other indications of retained and decaying material, a digital exploration of the interior of the uterus should be made and the offending material removed. Failing to detach it with the finger or appropriate forceps, such as a sponge holding forceps when the os is wide enough for its easy admission, a dull curet should be used, gently manipulating the same so as not to incur risk of perforating the uterine wall.

An offensive discharge, associated with bleeding, often urgently calls for the use of the sharp curet. A large-bladed instrument entails less danger to the patient, and with it one can do more thorough work. The use of the sound or small curet is dangerous, especially for those who are lacking in large experience in this line of work. At the time of curettage I irrigate the uterus freely with salt solution through the rinsing curet, having a very moderate elevation only of the irrigator, so as to avoid risk of forcing fluid into the abdominal cavity by the tubal route. Only occasionally a few douches are given afterward. Some take an extreme view, and object to the use of the curet in any form of uterine infection, claiming that it disseminates infection. In a large series of cases I have irrigated and curetted with the nappiest results. Rest in bed, nutritious diet, and stimulation if needed, form an important part of the after-treatment.

TREATMENT OF PUERPERAL SEPSIS.

The treatment of this condition as yet is undetermined and unsatisfactory. There are few diseases in which the treatment is so

far from ideal. Several more or less ineffective lines of treatment each have their champions. The yeasts, the nucleins, the serums, and more recently the opsonins, have been lauded more or less extravagantly. In one or several of these lines evidently lies the hope of the future.

The non-surgical treatment is largely expectant, symptomatic, and supportive, a prime essential being intelligent and careful nursing. The application of some of the principles of physiologic therapeutics is of value here. Especial attention should be paid to the securing of the best possible condition of the assimilative, as well as eliminative organs. As much appropriate nutriment as can be assimilated should be ingested. The skin must be bathed frequently, the body warmth must be kept up in such a manner as not to interfere with an abundant supply of fresh air, while plenty of pure water by the mouth, and saline solution by the bowel or under the skin, helps in the elimination of poison. The serious and widespread streptococcus infection profoundly intoxicates and depresses the patient. The entire body economy is upset, and the physician must do his best to marshal the demoralized and scattered vital forces against the multitudinous ranks of the enemy. Gastric lavage and the cautious administration of cracked ice and champagne will do more to relieve vomiting than drugs. The use of medicines pure and simple is of little avail; indeed, many remedies tend more to debilitate and upset the patient than otherwise. The use of heart tonics, as nux vomica and digitalis, is important. Use must be made of all agents calculated to antagonize the general adynamia.

Injections of saline solution subcutaneously and by the rectum are of great value, especially in the beginning of the disease. From 200 c.c. to 500 c.c. should be used at a time. The circulation is thereby regulated, heart action increased, and the cerebrospinal system and nutritive function are stimulated. Diuresis is increased promptly, but no very increased amount of toxic matter is eliminated. Improvement is usually ascribed to the dilution of toxins in the blood. The process of dilution should be kept up as long as new toxins develop.

Frequent sponge baths will keep the skin in good condition. Abnormally high temperatures should be reduced by cold sponging with water or alcohol and the application of ice bags to the scalp. If much inflammation of the lower abdomen is evidenced an ice bag may be applied above the pubes. The inhalation of oxygen will promote the oxidation processes, and the administration of stimulants will be of value at times; ergot has been recom-

mended on the ground that it would, by causing contraction, prevent extensive infiltration of the uterine tissues by cocci. It is, probably, of theoretical value only. The value of the nucleins, like that of alcohol, as a medicine has neither been established nor disproven. Credé's ointment, much used by its enthusiastic promulgator and his followers, and mercurial ointment, extensively used in German clinics, are both probably fairly good placebos. Fochier's abscess by fixation, produced by the injection of turpentine, is mentioned as a method of respectful antiquity. The intravenous injection of formalin solution had a brief but meteoric career. Aided by the medical press, too prone to seize every untried novelty, its boom was sudden; it went up like a skyrocket and came down like a stick.

Antistreptococcic serum has held the faith and support of the profession, made hopeful, nay even confident, by the brilliant results of diphtheria antitoxin; it was hard, therefore, to realize that other specific serums should not burgeon and blossom at the bidding of the laboratory wizard. The use of the various serums, Marmorek's being among the most notable, has not been encouraging. Lately horse serum has been used as an adjuvant to surgical measures with what seemed to be some indications of success. To date the injection of serum has obtained neither curative nor immunizing effect. It is a pretty universal belief, however, that it is only a matter of time when an effective serum will be produced which can be depended on for passive immunization and treatment. While the results reported from the use of the serum have been on the whole encouraging, their proper use is attended with no risk. Much was expected from vaccine therapy. Sir A. E. Wright says the results in streptococcus sepsis treated by his methods with opsonins have been fair, but not very encouraging.

The irrigation of the uterus with solutions of iodine and other germicides has been disappointing. Some still adhere to these irrigations. They probably do no harm, and may cleanse the uterine cavity mechanically. Other such semi-surgical measures as the packing of the uterus with ichthyol gauze still have a few half-hearted adherents who practise the method, giving as a reason that if it does no good it does no harm. The use of the uterine curet in the treatment of puerperal sepsis has been praised by a few and decried by many. It is most likely an effective means of scattering and increasing the infection.

Pryor's method of thoroughly curetting and irrigating the uterus, packing it with iodoform gauze, opening the cul-de-sac,

and making through this a fan-shaped packing of iodoform gauze, in his hands seemed to give unexcelled results. In considering this we are reminded of the old truism that human cell life is quite as susceptible to the poisonous action of chemicals as germ life, and in many instances more so. Duhrssen's suggested treatment of atmocausis for the interior of the uterus would probably have given few if any advantages over curettage, or even the use of caustic substances.

The opening and drainage of localized collections of pus is of course done by advocates of any and all methods of surgical treatment. It gives relief of a certain kind. The toxic part of the pus is no longer absorbed under high pressure. True, one is often not at all sure but that there may be concealed collections of pus after opening everything in the way of an abscess that can be located through the vagina. Recovery at best, after opening, draining, and irrigating an abscess cavity is a tardy procedure, associated with much tedious treatment. Generally a radical extirpation will have to be done later in order to effect a real cure. The simple incision and drainage of a pelvic abscess will at times save life. It is believed by many that vaginal drainage for acute pelvic peritonitis is beneficial. Others consider that all acute exudates in the same region should be incised and drained. All local collections of pus should be drained as soon as they can be located.

Simple single incision with drainage, and without irrigation, I think best for puerperal peritonitis. Some highly advocate multiple incisions, but their mortality statistics are not better than those of men who do less cutting. If the pelvis was the storm center I would advocate a supplementary vaginal drain, which has the advantage of gravity, especially when associated with the exaggerated Fowler posture. Pettit of Paris is a warm advocate of the use of horse serum in these cases; he pours it into the abdominal cavity, saturates drains with it, and introduces the dried serum on a tampon into the uterus. He says it calls out the polynuclear and increases the resistance to infection.

The excision of veins containing septic thrombi, if done early, will be productive of great good. These vessels can often be felt through the vagina as thick strands running out toward the pelvic wall, which can be approached either through the vagina or by median laparotomy. These thrombosed vessels usually lie entirely outside the uterus.

Extirpation of the uterus is of value if it is known that the infection is limited to that organ. The mild case often recovers

without hysterectomy, while the infection of the severe case is very apt to be spread beyond the uterus. Removal of the infected uterus is often followed by rapid collapse and death. If the precise conditions could be determined with absolute certainty hysterectomy would be more often in order. There is much room for the exercise of good judgment in this part of the treatment. In a considerable number of cases I have followed the more conservative plan of declining hysterectomy, and have had fair results.

DISCUSSION.

DR. ERNST JONAS, St. Louis.—I think the main point in the treatment of puerperal sepsis is to be sure of an exact diagnosis. We have been called in consultation to give advice as to how a patient who has puerperal sepsis should be treated, and we find that means have not been employed to make an exact and thorough diagnosis. If we are sure that the uterine cavity is absolutely empty, then in most cases *noli tangere* is the best advice to give, but only with the absolute assurance that nothing has been left in the uterine cavity. We must, for instance, be sure that there are not small abscesses in the parametrium, which are so frequently the cause of the septic condition, and are so easily overlooked, even by men who are working in this field. We must be sure that we can exclude these abscesses. I have operated on a good many of these cases, and a few years ago I reported to the St. Louis Surgical Club several such, all of which recovered.

I want to mention particularly one case where a small abscess, no larger than a walnut, pressed on the right side of the uterus in the broad ligament. Vaginal examination disclosed moderate infiltration on this side. The condition of the patient was miserable. I decided on operation after antistreptococcic serum and most of the other remedies which the essayist has mentioned had been liberally employed. It seemed as if all remedies had been tried in this case except operation. An incision was made above Poupart's ligament and gradually I worked my way into the pelvis without opening the peritoneal cavity and emptied the abscess, shortly after which the condition of the patient began to improve rapidly. Unfortunately, a week after the operation the patient got a septic pleurisy on the right side, but after frequent puncturing on this side, she recovered completely. It was not necessary in this case to make a resection of the ribs.

DR. JOHN A. LYONS, Chicago.—Prophylaxis is the important object to be kept in view in these cases. We get very bad cases of puerperal sepsis sometimes, and in this class I have not had good results, in taking care of them. I treat the symptoms. If I am satisfied the uterus is fairly clean, I give douches, spongings, and trust to God to bring the case out.

Dr. O. H. Elbrecht, St. Louis.—I want to compliment the author of the paper on the way in which he reviewed every method of treatment and how very careful he was not to advocate any one line of treatment. He mentioned them all, and we do not even now know what he favors.

One point that I think cannot be emphasized too strongly and this my only reason for bringing it up here, is the differential diagnosis between local sapremia and general sepsis. Unfortunately, too many cases are reported as instances of puerperal sepsis, when in reality they are nothing more than cases of local sapremia, and are thus considered successful treatments for puerperal sepsis. A sharp distinction should be made between the two and the most reliable way to differentiate is to make a blood culture. Until the streptococci can be demonstrated in the blood, the septic condition is usually local, and should be treated as such, but when we know the germs are in the circulation, then any treatment applied to the uterus is a waste of time. I have two uterine post-mortem specimens from women who died from streptococcus septicemia following abortion, which showed that they healed out perfectly before death occurred, for both look like non-gravid uteri with perfectly smooth endometrium. A sapremic condition developing on the third or fifth day will cause a temperature of 103 to 105 degrees, with acceleration of the pulse, in which there is a septic discharge and very foul odor, while in the septicemias it is a slow, progressive process that comes on slowly and climbs the hill, just as a typhoid curve does. The temperature rises morning and evening, and there is no remission, while in the other condition, with treatment for a couple of days, the temperature drops as fast as it came, and in my opinion, vaginal douches are as effective in these cases as intrauterine douches. I believe it wrong to use a curette in any case unless we know there is a considerable amount of placental tissue there which we can gently and easily remove with a dull curette, because nature has thrown out a barrier to fight the infection at the raw surface in the uterus the same as it would about wounds in any other location.

We have an infiltrated uterine wall loaded with leucocytes and protective cells and if we use a sharp curette we scrape them off and make a more extensive wound and infect fresh surfaces made by the curet. We would not curet a freshly infected wound anywhere else for fear of opening avenues of infection and thus producing sepsis and I do not see why it should be done in the uterus. I do not mean to convey the idea that we should not mop out a pus cavity or drain, but the moment you do anything with a sharp curet you get into the deeper structures that are acting as barriers to the infection, and you are opening sinuses.

The essayist did not mention a single surgical procedure excepting the Trendelenberg treatment of resecting the thrombosed veins in the broad ligaments. The tendency to place certain chemicals such as formalin directly into the blood to combat sepsis, is wrong, for that was proven by Ehrlich about twelve years ago.

He pointed out that any chemical put directly into the blood current that is strong enough to kill any germ will also have a hemolytic effect on the blood, and incidentally it helps the infection to spread. If you are going to put anything in the blood, put something in that is going to dilute the toxins or germs, and the best thing is saline solution.

This summer I tried Dr. Murphy's continuous rectal irrigation on a case of puerperal sepsis following an abortion and, from the effect, think it better than using saline in the vein or under the skin, the absorption being more uniform.

Dr. Roland E. Skeel, Cleveland.—I am always very glad to hear positive assertions with regard to diagnosis and I was a little surprised that Dr. Cannaday was not more positive in dealing with all the methods of treatment.

I was especially pleased to learn of the sharp differentiation which we might make between sapremia and septicemia. During a consultation practice of fourteen or fifteen years I have seen a fairly large number of cases of obstetric sepsis, and I confess that in most instances I was utterly unable to differentiate between sapremia and septicemia, and the clear cut differentiation between the rise of temperature in the one or the other I have never seen so that it could be used for diagnostic purposes. In some cases of sapremia there is a sudden rise of temperature on the third day, which disappears spontaneously on the fifth or sixth day. In a violent case of sepsis the temperature may go up to 106 the first day of illness and the patient live for seventy-two hours and then die, and this can be regarded as a case of puerperal septicemia, but I have not been able to make a differential diagnosis by any positive evidence whatever excepting the evidence afforded by the death of the patient, and to-day I feel just as unable to make a positive scientific differential diagnosis as I was at the time I saw such cases. Practically and from the standpoint of treatment if there is a foul, offensive odor; if I cannot find streptococci, staphylococci, or colon bacilli in the uterus, I regard it as a sapremia, or, if the colon bacillus is present a purely local colon bacillus infection, and neither sapremia nor septicemia.

There were two or three points in the paper which were discussed from the standpoint of opinion rather than from positive knowledge. One was with regard to the use of the curet. It would seem that the use of the curet in obstetric sepsis, whether it is a localized sapremia, a generalized infection, or what not, has been badly overdone, because if the general practitioner curets as a gynecologist does, he *scrapes* the uterus and in doing so disseminates infection. There is never a time in the first seventy-two or ninety-six hours after labor when there is not dead material in the uterus. It is always there. There is a necrotic layer of decidua to be cast off; there is a certain amount of clot which you cannot get rid of by intrauterine douches; and before the infection has traveled outside the uterus, I cannot see what

possible harm can be done by obstetric as distinguished from gynecologic curettage, merely to remove this foreign material. It is said that the granulation layer and leukocytes that are present are preventives of the spread of infection. While this is true, it takes time for granulation tissue to form in any wound, either inside or outside the uterus, and the worst cases of puerperal sepsis are those in which no granulation tissue has formed, because the patients are dead before time enough has elapsed for nature to throw out this protective barrier. If the curet is used with discrimination it cannot do any harm, but it needs to be used with discrimination, and its most apt use is after abortion rather than full term labor, but even after full term labor, you get rid of a necrotic layer of tissue covering the interior of an organ six inches deep which no finger can reach, and if used in the first day or two, it will rake off this dead tissue, which, as remarked before, is always there. Properly used, it can do no harm and clinical experience has demonstrated that it is usually beneficial.

I have been greatly interested in the use of chemicals in the blood, either as a preventive of infection or as a curative measure. Crede's adherents have raised a great ado about the use of collargol or colloid silver. I do not believe they think it of any use as an antiseptic in the blood, because the merest tyro knows that an antiseptic introduced into the blood of sufficient strength to kill microorganisms would almost inevitably kill the patient instead. I have used it eight or ten times experimentally and a curious thing has been that within forty minutes the temperature dropped from three to five degrees, but went up again in a short time. Whether this is due to the silver *per se* or to the intravenous injection, I do not know, but I wonder whether time will not show that in some certain classes of infection its reputation for being of value is justified. May it not prove to have stimulated resistance along the line of raising the opsonic index? Practically it seems to have virtue in some instances which might thus be explained theoretically.

Dr. Edward J. Ill, Newark.—It hardly seems to me that we need be told what is sapremia, what is sepsis, and what is septicemia. They are three different conditions. A sapremic condition usually gets well. We all know that. A sepsis begins with an inflammation in the uterine cavity. I do not care what the bacillus is that does the mischief, nor can we wait for a laboratory diagnosis. Let us treat these patients in a surgical way.

Twenty years ago Price told us how to drain. If anyone wants to know how to drain, let him see Dr. Price operate. When I saw Price operate I knew why he had results; he drained his cavities and he did it well. I have not yet seen good results from any medical treatment. Let us exclude a sapremic inflammation, which means nothing but the retention of decomposing material in the uterus. Any tyro in medicine makes the diagnosis when he opens the uterine cavity and a gush of fluid results. That usually finishes that case, but not always, because he may

have a septic inflammation to deal with. Put a rubber tube into that uterus; fill the uterine cavity with gauze so that it will lightly fill every corner or crevice of the uterus; then let the nurse or woman who has charge of the case pour fifty or sixty c.c. of a twenty-five per cent. dilution of alcohol into the uterus every two hours. It will dry up the coagula and loose decidua; destroy the nidus for the growth of germs, and if you get the case early enough the woman will get well. You must not wait until she is septicemic, as then the chances are against the patient for a recovery.

DR. O. H. ELBRECHT, St. Louis.—The last speaker (Dr. Ill) spoke of the difference between sapremia and sepsis. One of the most valuable practical points for differential diagnosis, I learned in this city in the laboratories of Parke, Davis and Company. I noticed if any of their horses became septic, they tapped blood from the jugular vein and grew it in bouillon, and the same can be done on the human subject by tapping the bascilic vein with an antitoxin syringe and withdrawing about an ounce or more of blood and growing in about four to six ounces of bouillon. In the case I cited in my previous remarks we found streptococci by this method long before she showed any plain clinical symptoms. They were demonstrated several times by this method before her death.

DR. MORRIS.—Did you speak of streptococcic septicemia? I would like to know if you are differentiating between septicemia and bacteremia, where the bacteria are free in the blood current, with a distant infection?

DR. ELBRECHT.—If there is a septicemia it is perhaps caused by some germ that generates toxin, but a septicemia may also be a bacteremia where several species are present, as in the mixed infections and non-producing toxins.

DR. MORRIS.—I had reference to those cases in which the bacteria are free, swarming in the blood, not being destroyed by the phagocytes rapidly enough, and making progress in the blood. These appeared to be hopeless cases, not subject to treatment by bloodwashing or any other method of treatment.

DR. ELBRECHT.—I was speaking of streptococcus septicemia, for this is the species we are most afraid of.

DR. MORRIS.—In this streptococcus infection you speak of, you do not include those cases in which there are numbers of bacteria free in the blood and progressing in spite of the phagocytes. There are a number of them of one species free in the blood.

DR. ELBRECHT.—It seems to me that is more of a question of immunity, for it would depend on how well the phagocytes multiply in ratio to the number of bacteria present. As a rule, you will find but one variety and the usual one in these caess is the streptococcus. I have, however, had one that showed only the staphylococcus aureus and she developed a typical pyemia and on

post mortem showed small abscesses in the spleen, liver, kidney and brain.

Dr. James F. W. Ross, Toronto.—It is rather discouraging to hear these discussions on puerperal septicemia from year to year, as we do not seem to get any additional enlightenment or knowledge on the subject. I have long since settled one question for myself, and that is, an ounce of prevention is worth a pound of cure, and it applies to these cases.

In clinical work in the last few years we have been carrying out two procedures in all cases of septicemia, either after full term labor or after miscarriage. First, to satisfy ourselves that the uterus is empty, and the only instrument that is used for that purpose is the finger, and if there is retained placenta the finger and not the curet is used to remove it. The curet is an instrument that, in my judgment, should not be used for this purpose, and the man who cannot remove placenta with his finger had better leave it alone. Then, if no placenta is found, the uterus has been explored and the attendant is satisfied on that score. He should not wait for the septicemia to continue before satisfying himself that the uterus is empty. The finger can be inserted, and if there is placenta retained it can be removed. Provided the placenta is removed, and we still have infection in these cases, we frequently find on examination of the discharge, the presence of the gonococcus, and, whenever a woman comes in with a high fever after miscarriage, we first satisfy ourselves as to whether or not the uterus is empty, and then examine for the gonococcus. Gonorrheal infection we cannot very well obviate. The wife may have been infected in some way immediately before her labor, or miscarriage, and still have been all right a week or ten days before. When such infection occurs it is one of the most virulent with which we have to deal.

Dr. Morris.—Is it not true that in some cases the placenta is very adherent, and one has to use more or less force in order to remove it?

Dr. Ross.—I have once or twice used a good deal of force in the endeavor to get away the placenta, and have been sorry for it afterwards. I think the patients would do better if it were left alone. I recall one case in which the placenta was in utero for eight months after a miscarriage, but it did not do any particular harm. I should say, then, that if the placenta cannot be removed readily with the finger, I do not believe it is wise to use the curet. The curet must necessarily open up a large surface for infection, whereas the finger feeling the exact site of the piece retained placenta only disturbs the underlying portion of the uterine wall and does a minimum of damage.

Dr. Joseph Price, Philadelphia.—This free and earnest discussion in regard to the use of the curet takes me to the other side of the uterus, for while my early experience was inside the uterus, now it is outside.

I agree with what has been said in regard to curettage, and also as to the importance of drainage, recommended by our distinguished surgical friend, Dr. Ill. Mr. Tait formulated a law that the curet should not be found in the hands of the inexperienced, and in the hands of the experienced it was never needed. At one time I was greatly interested in this subject, because nearly one-fourth of a century ago I was at the head of the Preston Retreat, and I very well remember what Oliver Wendell Holmes said with regard to puerperal sepsis. A lot of obstetricians in Philadelphia replied to Holmes, some of whom called him a nursling, when he read that epoch-making paper on this subject. As I have said, I was interested at that time in a large maternity, in which I saw a number of cases of puerperal sepsis. Our distinguished friend, Dr. McMurtry, at or about the same time said that every puerperal woman should be treated as a surgical case. The site of the placenta is a huge wound, and we should treat them as if they had a surgical injury. I adopted the same surgical rules in regard to maternity cases that I practised in doing ovariotomy or hysterectomy, whether above or below, and with precisely the same results. McLean, myself, Rohé, Goodel, and others, practically put an end to puerperal sepsis. There was no such a thing as temperature in the Sloan Maternity, except it might in some cases be 98.6°. The same was true in the Preston Retreat, and also in the Rohé Maternity, Baltimore. You can take the reports of those hospitals and find that the mortality is *nil*. They have practically blotted out puerperal sepsis and puerperal infection.

I went to Chambersburg a few years ago to see a woman who had been delivered some two weeks before. The temperature, so to speak, went over the top of the chart. In examining this woman very carefully, I found, on the right side, that there were adhesions to the uterus. I said to the attending physician that we would go in and find out what was wrong. I opened her abdomen and found four abscesses in the uterine wall. I incised these yellow points, and wherever I found a yellow surface, I cut it open. I cleansed and drained these abscesses, put the uterus in a gauze mit, and the woman recovered without an untoward symptom. The temperature ceased to jump over the top of the chart. Dr. Cartledge reported a series of such cases, as did also Dr. W. E. B. Davis. I have not seen in the last five years a single case of that kind reported. The surgical profession has seemed to look for mischief above, so I have simply entered this discussion to call attention to the fact that the trouble may not be below, and if you fail to find it there, do not be a surgical coward and hesitate, but attack it from above.

Dr. Magnus A. Tate, Cincinnati.—If anyone entered this hall at this time and heard this discussion he would know that obstetrics was again assuming its proper position. Obstetrics in the last few years, it can be truly stated, has been somewhat in an experimental stage. If I were asked what I would consider to be

the best treatment for puerperal sepsis, I should unhesitatingly say the proper management of labor, and that is the reason why institutions in the East, West, North and South have such good results in the management of obstetrical work because cases are treated in a proper, scientific manner. Curettage in obstetrical cases is not (as a rule) done by the gynecologist or the specialist in obstetrics, but by the general practitioner; and when called in consultation to see cases of sepsis the rule is, that the curet has already been used. It is an established fact in gynecology and obstetrics, as in other work, that whenever an abscess is encountered it should be opened. There is one question I trust Dr. Cannaday will answer in closing this discussion: In what kind of cases should the uterus be removed when dealing with puerperal sepsis?

Dr. CANNADAY (closing the discussion).—In answer to Dr. Tate's question, I do not believe that any human being can say when or when not the uterus should be removed in these cases, because, while in a case of puerperal sepsis we might see fit to remove the uterus, the chances are the patient would have done equally as well or better without it.

I do not make any positive or dogmatic statements in regard to the treatment of puerperal sepsis, nor do I advocate any positive line of treatment, because I have not as yet seen any man who advocated a positive treatment who could back it up with results.

END RESULTS IN OPERATIONS FOR PROLAPSUS UTERI.

BY

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Providence.

THE very liberal discussion that followed the excellent essay upon prolapsus uteri presented by Dr. Hayd at the meeting of this association two years ago demonstrated two things—first, the importance of this subject, and second, the lack of unanimity among us as to the proper surgical method to employ for the permanent cure of this distressing condition. Some advocated hysterectomy, others ventrofixation, ventrosuspension or Alexander's operation, combined with plastic surgery of the parturient canal. I wish to offer for your consideration some of the results that have been obtained by means of the Alexander operation combined with plastic surgery upon the cervix and vagina.

Among the first causes of prolapsus uteri we have relaxation and lengthening of the uterine ligaments or supports, which allows retrodisplacement of the uterus. This is really the first stage of procidentia. The uterus is found pointing in the direction of the long axis of the vagina instead of, as we normally find it, at right angles to the same. Intraabdominal pressure and the weight of the uterus are important factors in the production of prolapsus uteri. This increased weight of the uterus may be due to faulty position, subinvolution, tumors, lacerations, and interference with the uterine circulation. We find hypertrophy of the supra- and infravaginal portions of the cervix producing elongation. As the uterus descends we have primary prolapse of the vagina, causing cystocele and rectocele, followed by inversion of the vagina and complete prolapse of the entire uterus, which may become rough and ulcerated from friction and exposure.

While lacerations of the vagina, levator ani muscle, and obturator fascia have some influence in the production of procidentia, this cause I believe has been very much overestimated. Why do we so often see prolapsus uteri in virgins, and why do we fail to cure prolapsus uteri in multiparæ by plastic operations

SERIES I—PROLAPSUS FIRST DEGREE

Case No.	Age	M. S. W.	Condition Before Operation	Symptoms	Date of Operation	Operation	Discharged	Position of Uterus	Subsequent History
1	54	M	Prolapsus, first degree; lacerated cervix and perineum; hemorrhoids.	Amenorrhea; headache; backache.	1900—Jan. 25	Curettage; trachelorrhaphy; perineorrhaphy; Alexander (Abbe) clamp & cautery.	Feb. 24, primary union.	Normal.....	Jan. 13, '03: Sound shows uterus to be in normal position. General health good.
2	24	M	Prolapsus first degree; small lac. of cervix; lacerated perineum.	Constant pain in back.	1900—May 3	Curettage; perineorrhaphy; Alexander (Abbe).	May 18, primary union.	Uterus in good position.	Feb. 24, '03: For past 6 or 8 mos. had pain in left ovary and down left leg on standing. Free from backache. Gained in flesh.
3	33	M	Prolapsus first degree; lacerated cervix; lacerated perineum.	Irregular menstruation; displaced uterus.	1901—April 16	Curettage; perineorrhaphy (E); trachelorrhaphy (E); Alexander.	May 15, primary union.	Good posit'n.	Jan. 13, '03: Child 5 mos. ago; since then some pain in abdomen. Sound shows uterus to be in good position.
4	39	M	Prolapsus first degree; endometritis; hemorrhoids.	Excessive flow; constipati'n; hemorrhoids.	1901—Aug. 15	Curettage; Alexander clamp and cautery	Primary union.	Good posit'n.	Aug. 16,'07: Uterus in good positi'n; no return of sympt'ms.
5	34	M	Prolapsus first degree; lacerated cervix; lacerated perineum.	Exhausting menses; bearing down pain; cold extremities; frequent micturition.	1902—Feb. 20	Curettage; trachelorrhaphy; perineorrhaphy (Iait); Alexander.	Mar. 22, primary union.	Good posit'n.	June 17, '02: Uterus in normal position per sound. Jan. 8, '03: Feeling very well. Mar., '03: Uterus normal, position. Aug. 28, '07: No return of former trouble.
6	28	M	Prolapsus first degree; lacerated cervix.	Irregular menst. with pain; numbness; paralysis hands and feet. Condition disappear'd c. flow.	1902—Oct. 2	Curettage; amp.cervix; Alexander.	Oct. 23, primary union. Left against advice.	Good posit'n.	Nov. 6, '06: Uterus in good position. Drawing pain on right side, region ovary and tube. Has had 2 children since operation; last child 17 months old.
7	27	M	Cholelithiasis; prolapsus first degree; lacerated cervix and perineum.	Biliary colic for six years; prolapsus.	1902—Oct. 22 Nov. 19	Oct. 22: Stone rem'v'd, cystic duct. Nov. 19: Curettage; amp. cervix; perineorrhaphy; Alexander.	Primary union.		

8	21	M	Prolapsus first degree; lacerated cervix and perineum.	Leucorrhea; some pain in hips and each side abdomen worse at night.	1903—Jan. 29	Cath. of ureters; curettage; trachelorrhaphy; perineorrhaphy; Alexander.	Feb. 22, primary union.	Good posit'n.
9	26	M	Prolapsus first degree; lacerated cervix and perineum; cystocele; endometritis.	For 17 mos. has had leucorrhea, backache; burning micturition.	1903—Feb. 3	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	Feb. 28.....	Good posit'n.
10	34	M	Prolapsus first degree; lacerated cervix and perineum.	For 3½ yrs. had severe backache, headache, bearing down and weight in pelvis; leucorrhea.	1903—Feb. 7	Curettage; amp. cervix; perineorrhaphy (Polk); Alexander, cath. of ureters.	Feb. 26.....	Good posit'n.
11	40	M	Prolapsus first degree; lacerated cervix and perineum; cystocele.	Severe backache; headache; leucorrhea.	1903—Feb. 12	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy; Alexander; cath. of ureters.	Mar. 15, primary union.	Good posit'n.
12	30	M	Prolapsus first degree; lacerated and hypertrophied cervix; lacerated perineum.	Thinks she had miscarriage, after which had bloody discharge 11 weeks.	1903—May 5	Curettage; amp. cervix; perineorrhaphy (E); Alexander.	June 2, primary union.	Good posit'n.
13	30	M	Prolapsus first degree; hypertrophied and ulcerated cervix; lacerated perineum.	Pain in left side; backache, headache; constipation.	1903—May 19	Curettage; amp. cervix; perineorrhaphy (E); Alexander; cath. of ureters.	June 9, primary union.	Good posit'n.

SERIES II—PROLAPSUS SECOND DEGREE

1	51	M	Prolapsus second degree....	Prolapse; loss of flesh.	1896—April 9	Ant. colporrhaphy; post. colporrhaphy.	May 3.....	Good posit'n.
2	26	M	Prolapsus second degree; lacerated perineum.	Pain back and vagina; irregular menstru'n; incomplete control of urine.	1896—July 9	Ant. colporrhaphy; perineorrhaphy.	July 26, primary union.	Good posit'n.

SERIES II—PROLAPSUS SECOND DEGREE—(Continued)

Case No.	Age	M. S. W.	Condition Before Operation	Symptoms	Date of Operation	Operation	Discharged	Position of Uterus	Subsequent History
3	22	S	Prolapsus second degree; mass on left side.	Pain in back.....	1896—Oct. 26	Ventral suspension....	Nov. 23, primary union.	Good posit'n.	
4	35	M	Prolapsus second degree; cervix 1" within vulva; lacerated cervix and perineum.	Prolapse.....	1897—Aug. 5	Curettage; amp. of cervix; perineorrhaphy (Emmett); Alexander (Abbe).	Aug. 29, primary union.	Good posit'n.	Mar. 4, '99: Child born. Sept. 3, '01: child born. Normal delivery, no forceps. Exam. Feb. 14, '03 U.; good position; slight cystocele. Exam. Aug. 21, '03. U. good position. Cysto. & recto.
5	48	W	Prolapsus second degree; Cystocele.	Bearing down pain; vesical irritation.	1898—May 17	Curettage; ant. colporrhaphy; Alexander (Abbe).	June 19, primary union.	Good posit'n.	Nov. 20, '01: Cervix presents at vulva; oper. failure; to return for vaginal hysterect'y.
6	25	M	Prolapsus second degree; lacerated cervix and perineum; cystocele; hemorrhoids.	Prolapse; frequent micturition.	1902—1 Jan. 2	Curettage; ant. colporrhaphy; perineorrhaphy (Emmett); clamp and cautery; Alex'd'r.	Jan. 25, primary union.	Good posit'n.	
7	45	M	Prolapsus second degree; lacerated cervix and perineum; cystocele and rectocele; hemorrhoids.	Menstrual flow profuse; palp'ati'n heart; headache; weak legs; painful frequent micturition.	1902—Mar. 29	Curettage; trachelorrhaphy; ant. colporrhaphy; perineorrhaphy (Em.); Clamp & cautery; Alexander.	April 27, primary union.	Good posit'n.	
8	46	M	Prolapsus second degree; lacerated cervix; lacerated perineum.	Irregular menstruat'n; falling of womb.	1902—May 10	Curettage; amp. cervix; perineorrhaphy (Emmett); Alexander	June 6, primary union.	Good posit'n.	Jan. 8, '03: Patient is feeling very well. No return of previous symptoms.
9	47	M	Prolapsus second degree; lacerated cervix and perineum; cystocele and rectocele; urethral caruncle; hemorrhoids.	Weight in pelvis; frequent micturition; piles.	1902—Sept. 27	Curettage; amp. cervix; ant. colporraphy; perineorrhaphy; removal caruncle; cl'mp and cautery; Alexander.	Oct. 25, primary union.	Good posit'n.	
10	28	M	Prolapsus second degree; lacerated perineum; cystocele and rectocele.	Falling womb; backache, headache; ammenorrhea; frequent micturition.	1903—Sept. 28	Curettage; ant. colporrhaphy; perineorrhaphy (E); Alexander.	Oct. 25, primary union.	Good posit'n.	

11	24	M	Prolapsus second degree; lacerated cervix and perineum; rectocele.	Constant pain in back; menses irreg'l'r; bearing down pain; constipation.	1903—Oct. 6	Curettage; amp. of cervix; perineorrhaphy (E); Alexander.	Oct. 25, primary union.	Good posit'n.	
12	38	M	Prolapsus second degree; lacerated cervix and perineum; cystocele and rectocele.	Bearing down pain during menstruation; constipation.	1903—Oct. 13	Curettage; amp. of cervix; perineorrhaphy (E); Alexander.	Nov. 12, w'nd in groin suppurated.	Good posit'n.	
13	37	M	Prolapsus second degree; lacerated cervix and perineum; hemorrhoids.	Depression; pain in left side; heaviness in pelvis; leucorrhea.	1903—Nov. 14 Dec. 1	Nov. 14: Curettage; amp. of cervix; Alexander. Dec. 1: Clamp and cautery.	Dec. 13, primary union.	Good posit'n.	
14	32	W	Prolapsus second degree; lacerated cervix and perineum; cystocele; hemorrhoids.	Pain in back; prolapse.	1904—May 10	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (E); clamp and cautery; Alexander.	June 6, primary union.	Good posit'n.	Abdominal hysterectomy for fibroids done later at Montreal.
15	32	M	Prolapsus second degree; lacerated and ulcerated cervix; lacerated perineum; cystocele; hemorrhoids.	Falling womb; dragging pain in back.	1907—Mar. 12	Curettage; amp. of cervix; ant. colporrhaphy; perineorraphy (E); Allingham Ope.; Alexander.	Mar. 25, primary union.	Good posit'n.	Sept. 11, 1907: Some pain in back; no weight in pelvis; no bearing down pain. Uterus in good position, as shown by sound.

SERIES III—COMPLETE PROLAPSUS

1	32	M	Prolapsus third degree; 3″ outside vulva; lacerated and eroded cervix; lacerated perineum.	Prolapse; dysmenorrhea.	1896—Oct. 22	Trachelorrhaphy; ant. colporrhaphy; lat. colporrhaphy.	Nov. 23, primary union.	Good posit'n.	1900: one child; now complains of same trouble as before operation.
2	35	M	Prolapsus third degree; 3″ outside vulva; lacerated and ulcerated cervix; lacerated perineum.	Prolapse; dysmenorrhea.	1897—Feb. 9	Curettage; ant. colporrhaphy; trachelorrhaphy; perineorrhaphy (E).	Feb. 27, primary union.	Good posit'n.	
3	47	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Four miscarriages; prolapse.	1897—Sept. 6	Curettage; trachelorrhaphy; perineorrhaphy (E); Alexander (Abbe).	Sept. 21, primary union.	Good posit'n.	Operation a failure. Prolapse to second degree returned Submitted to second oper'n. Case 4, series 2.

SERIES III—COMPLETE PROLAPSE (Continued)

Case No.	Age	M. S. W.	Condition Before Operation	Symptoms	Date of Operation	Operation	Discharged	Position of Uterus	Subsequent History
4	30	M	Prolapsus third degree; lacerated cervix and perineum; hemorrhoids.	Prolapse; pain in back; bleeding piles; leucorrhea.	1897—Sept. 13	Curettage; trachelorrhaphy; perineorrhaphy (E); Alexander (Abbe); Clamp and cautery.	Oct. 3, primary union.	Good posit'n.	
5	42	M	Prolapsus third degree; 1" outside vulva; lacerated cervix and perineum; cystocele and rectocele.	Frequent micturition; incomplete control of bowels; general indisposition.	1898—Mar. 19	Curettage; trachelorrhaphy; perineorrhaphy; ant. colporrhaphy; Alexander (Abbe)	April 18, primary union.	Good posit'n.	
6	27	M	Prolapsus third degree; lacerated cervix and perineum.	Bearing down pain; uterus protrudes at times; headache; vesical irritation; pain in legs; leucorrhea.	1898—Oct. 1	Curettage; trachelorrhaphy; perineorrhaphy (E); Alexander; (Kelly) modification.	Oct. 20, primary union.	Good posit'n.	Feb., 1900: Boy born. Sept., 1901: Boy born. Exam'd Feb. 14, '03, uterus in normal position; cyst of perin'm.
7	61	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Mass in vagina comes outside, hinders walking; leucorrhea; frequent micturition.	1899—May 2	Curettage; ant. colporrhaphy; trachelorrhaphy; perineorrhaphy (E); Alexander.	June 3, primary union.	Good posit'n.	No trouble since operation. Good result.
8	26	M	Prolapsus third degree; lacerated cervix and perineum.	Complete tear of perineum with first child; operation; torn with second child; operat'n	1900—Mar. 27	Curettage; amp. of cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	April 25, primary union.	Good posit'n.	Dec. 31, '02: Child born, normal labor. Jan. 3, '03: U. normal position; slight tear perineum. Right vulva vaginal cyst.
9	41	M	Prolapsus third degree; lacerated cervix and perineum; rectocele and cystocele.	Five miscarriages; prolapse.	1900—Aug. 23	Curettage; amp. of cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	Sept. 19, primary union.	Good posit'n.	Aug. 8, 1907: Patient has enjoyed good health since operation. No return of previous trouble.
10	32	M	Prolapse third degree; 1" outside vulva; lacerated cervix and perineum.	Four miscarriages; falling womb.	1901—April 2	Curettage; trachelorrhaphy (E); ant. colporrhaphy; perineorrhaphy; Alexander.	May 13, primary union.	Good posit'n.	Jan. 2, '02: Uterus in good position. March, '05: Cervix 3" from outlet vagina. Aug. 21, '07: Uterus in good position No prolapse. Menstruation regular.

11	42	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele; hemorrhoids.	Weakness in perineum; general indisposition; vesical irritability.	1901—Aug. 29	Curettage; amp. of cervix; ant. colporrhaphy; perineorrhaphy; Alexander; clamp and cautery.	Sept. 30, primary union.	Good posit'n.	Jan. 11, '03: Perfectly well since operation. No urinary symptoms as before. Uterus prolapsed, cervix 1" within vulva. Vesicocele.
12	45	M	Prolapsus third degree; ½" from vulva; lacerated cervix and perineum; cystocele.	Backache; headache and weakness; cannot walk far or lift.	1901—Sept. 3	Curettage; trachelorrhaphy; ant. colporrhaphy; perineorrhaphy (K); Alexander	Oct., primary mary union.	Good posit'n.	
13	34	M	Prolapsus third degree; lacerated cervix and perineum; cystocele; hemorrhoids; left inguinal hernia.	Weakness; foreign b'dy between thighs; incontinuence of urine.	1901—Nov. 5	Curettage; ant. colporrhaphy; perineorrhaphy (E); clamp and cautery; Alexander, with repair of hernia.	Dec. 5, primary union.	Good posit'n.	Jan. 23, '03: Marked cystocele. Cervix 1" within vulva. uterus large.
14	57	M	Prolapsus third degree; lacerated cervix and perineum; hemorrhoids.	Complete prolapse; unable to replace uterus.	1902—Jan. 14	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (P); clamp and c't'ry.	Mar. 15, primary union.	.....	Jan. 15, '03: Excellent result. Uterus in normal position. Patient never felt better.
15	62	M	Prolapsus third degree; lacerated cervix and perineum.	Complete prol'se; pain in back and sides; constipation.	1st, '02, Dec. 2 2d, '03, Feb. 7	Alexander; vaginal hysterectomy. Ant. colporrhaphy; perineorrhaphy.	Dec. 25..... Mar. 14.....	....	
16	44	W	Prolapsus third degree; hypertrophied cervix; lacerated perineum; cystocele.	9 mos. ago strained and felt something give way; back and headaches; weakness.	1903—May 26	Curettage; ant. colporrhaphy; perineorrhaphy (E); Alexander.	June 19, primary union.	Good posit'n.	
17	33	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Womb comes down; head and back aches; flows considerably; constipation.	1903—June 6	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	July 2, primary union	Good posit'n.	Feb. 8, '04: Two months pregnant. Uterus in normal position.
18	32	S	Prolapsus third degree; elongated cervix.	Pain in back and sides for 15 weeks; headaches.	1906—July 2	Curettage; amp. cervix; Alexander.	July 26, primary union.	Good posit'n.	Aug. 27, '07: Cervix 1½" long. Sound passed in normal direction. Uterus felt above pubes.
19	38	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Dragging pain in back; leucorrhea; prolapse 1".	1907—July 7	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	July 30, primary union.	Good posit'n.	

SERIES IV—PROLAPSUS VAGINAL HYSTERECTOMY

Case No.	Age	M. S. W.	Condition Before Operation	Symptoms	Date of Operation	Operation	Discharged	Position of Uterus	Subsequent History
1	39	M	Prolapsus third degree; lacerated cervix and perineum.	Bearing down pains; headache; vomiting; irregular menses.	1897—Oct. 1	Vaginal hysterectomy.	Nov. 10.....	.....	Dec. 10, '97: Has continued to improve.
2	52	M	Prolapsus second degree at vulva; lacerated cervix and perineum; rectocele.	Abdominal pain; difficult urination; difficult walking.	1897—Dec. 30	Vaginal hysterectomy.	Jan. 25.....		
3	45	W	Prolapsus second degree; lacerated cervix and perineum; cystocele and rectocele.	Feeling of weakness; profuse flowing.	1898—Mar. 1	Vaginal hysterectomy.	Mar. 4: Died; embolus of coronary artery.		
4	64	W	Prolapsus third degree; lacerated perineum; rectocele.	Mass protruding from vagina; pain in side and back; flowed for 1 year.	1898—June 30	Vaginal hysterectomy.	July 3, died.		
5	56	M	Prolapsus third degree; complete laceration of perineum; cystocele.	Bearing down pains, headache, backache; burning micturition; mass from vagina.	1901—Mar 9	Vaginal hysterectomy.	April 8.....		
6	59	S	Prolapsus.....	.....	1902—April 5	Vaginal hysterectomy.	May 1.....		
7	45	M	Prolapsus third degree; elongated and ulcerated cervix.	Prolapse; leucorrhea; pain across back.	1902—May 6	Vaginal hysterectomy.	May 29.....		
8	62	M	Prolapsus third degree; lacerated cervix and perineum; cystocele.	Prolapse; discomfort in urinating; pain in back and sides.	1902—Dec. 2 1903—Feb. 7	1st, vaginal hysterectomy. 2nd, ant. colporrhaphy; perineorraphy.	Dec. 25..... Mar. 14.....		

upon the vagina and pelvic floor alone? What are the pathological findings in prolapsus uteri that require correction? Weight of uterus, elongation of the cervix, retrodisplacement, relaxation and lengthening of ligaments, cystocele, and rectocele.

The weight of the uterus may be lessened by a thorough curetment and amputation of the cervix; the latter doing away with the elongated cervix. The cystocele and rectocele may be repaired by the operation best suited to the operator. I believe that there are a number of methods for successfully repairing a lacerated perineum with rectocele. We may use silk, catgut, or silver, each man having his own particular suture and method; but it matters not if he bears in mind the anatomy of the parts; that the levator ani muscle arises on either side of the pubic ramus and passes back and around the lateral walls of the vagina, uniting with its fellow behind the rectum, its fibers being intimately interwoven with the lateral walls of the rectum.

We must remember, also, that not only are the skin and vaginal mucosa lacerated, but that the levator ani muscle and obturator fascia are torn and at times even the sphincter ani muscle, and that a successful operation requires that all divided tissues should be united. A successful plastic surgeon must have mechanical ingenuity and perform the operation best suited to the case in hand. He should not have in mind any definite diagram, but should be conversant with the principles of a number of methods advocated for repair of the perineum. I am still convinced that Emmet, that master of plastic surgery, has given to us the best method, if we but grasp the principles upon which his operation is based.

Now, as to the method of correcting the relaxation and lengthening of the uterine ligaments. The round ligaments or muscles, as they more properly should be called, are so situated that they can be readily found in the inguinal canals. Traction upon the round ligaments pulls the uterus not only forward but also upward, as I have many times demonstrated, the fundus being readily palpated just above the pubes. The anteverted position of the uterus, which follows a careful shortening of the round ligaments, places the uterus at a right angle to the axis of the vagina, this position being unfavorable to descent.

I am convinced that hysterectomy for prolapsus should be practised in only rare instances. It is an operation attended with a high rate of mortality. The loss of the uterus has a depressing mental influence upon many women; and at the child-bearing

age should never be performed for prolapsus uteri. And why? Because we have proved by a number of instances that simple procedures like an Alexander's operation, amputation of the cervix, anterior and posterior colporrhaphy and perineorrhaphy, attended with no mortality, are sufficient not only to relieve symptoms, but to enable the patient to bear children and subsequently thereto to leave the uterus in good position with no symptoms.

It will be seen by the accompanying tables that forty-eight cases have been operated upon for prolapsus uteri of varying degree. Of these cases, forty-six were treated by the combined methods of plastic operation on the parturient canal and the Alexander operation. Two cases, 1 and 2, series 3, were treated at first by plastic work only, and of these two cases one, case 4, series 2, was subsequently operated upon by the Alexander method. We have been able to trace after operation twenty-three cases out of the total forty-eight, or over 47 per cent. Of the twenty-three cases examined we have found eighteen, or 77 per cent., with the uterus in good position and cured of their previous symptoms. Of the five cases remaining, two cases, 11 and 13, series 3, had a return of prolapsus to the second degree, but without any subjective symptoms. Case 1, series 3, was treated by plastic work on the vagina and for four years remained well until she gave birth to a child, after which the prolapse returned. In this case no Alexander was done. Case 2, series 3, was also treated by plastic work, with also a resulting failure. This case returned later, case 4, series 2, the plastic work was repeated and an Alexander operation done. After this the patient bore two children and on examination, August 21, 1907, we found the uterus in good position, with a moderate cystocele and rectocele. The patient has had no return of the symptoms for which she sought operation. The other case of failure, case 5, series 2, was advised to return for hysterectomy.

Seven cases have borne children since operation, and one, case 17, series 3, was in a state of pregnancy at time of examination. Cases 6, series 3, and 4, series 2, have been confined twice. The labor in every case was normal, free from the use of forceps, and did not cause a return of prolapsus except in case 1, series 3, which did not have the benefit of an Alexander operation. As can be seen by studying the chart, the most brilliant results have been obtained in the cases of complete prolapse. Out of a total of nineteen cases of this degree of prolapse operated upon, we have been able subsequently to examine twelve, or 63 per cent.,

without being able to find one complete failure where the Alexander operation was made. One case, No. 2, series 3, failed with only plastic work on the cervix and vagina, but when, later, an Alexander was performed the operation was a conspicuous success. Two cases, 11 and 13, series 3, as reported above, had a return of prolapse to the second degree, but without any subjective symptoms. A more detailed description of each case may be had from the accompanying chart.

Some ten years ago I concluded to add the Alexander operation to the operations of curetment, amputation of the cervix, anterior and posterior colporrhaphy and perineorrhaphy for the cure of prolapsus uteri. I was led to adopt this method on account of the failure to cure an aggravated case of complete prolapsus uteri by the operation of curetment, trachelorrhaphy, anterior and posterior colporrhaphy, and perineorrhaphy. In this case the uterus projected beyond the vaginal outlet and was as large as a small orange, with a thickened, dry, and ulcerated surface. Two specialists in gynecology had told her that operation would be of no value, but that some relief might be afforded by tampons and mechanical appliances.

Four months after the first series of operations, the cervix, very much elongated, presented at the vaginal outlet. I was so impressed by the excellent results I had obtained with the Alexander operation, in a number of cases of retroversion of the uterus, that I decided to shorten the round ligaments, thus pulling the uterus upward and forward, besides amputating the elongated cervix and repairing the vaginal outlet. This patient has borne two children since the operation with normal labors. Examinations at different periods, the last one within a month, show that there is now a slight vesicocele, while the uterus is in normal position. I am convinced of the practical value of the Alexander operation combined with plastic surgery upon the uterus and vagina in cases of prolapsus uteri.

DISCUSSION.

Dr. Herman E. Hayd, Buffalo.—I have been especially interested in this paper, and I wish to compliment Dr. Keefe on the splendid results he has obtained by reason of the surgery he employed, and at the same time I wish to say that I believe that he does not realize he contradicts himself in his paper in that he does not wish to attribute to the production of the prolapsus the

influence of a relaxed perineum, and a torn pelvic fascia. Yet I believe it is because he did plastic surgery, thus restoring these structures, that he succeeded in curing these patients. Not only did he build up the perineum and the anterior vaginal wall, but he was careful with the pelvic fascia and levator ani because these contribute so much in the cure of the prolapsus. It does not matter whether he does the Emmet operation, Price's operation, or the operation I spoke of when I read my paper. All operations that bring together in definite apposition from above downwards the various structures that are torn or relaxed will restore the perineum. I found a good deal of difficulty in a number of my cases when I performed the Emmet operation, and it was for that reason that I elaborated the operation on which I read my paper some years ago.

I agree with the essayist for the most part so far as the pathology is concerned in the production of prolapsus uteri. It is not only intra-abdominal pressure, but, as he after all admits, in a measure a relaxed outlet. The first thing in the production of the prolapsus is the retroversion and gradually the rectocele comes and then the cystocele descends and finally a protusion of the uterus takes place with sometimes one-half of the abdominal cavity.

Now, the important thing in surgery is to restore the pelvic fascia and lessen the vaginal outlet by anterior and posterior colporrhaphy and give the vaginal canal an oblique instead of a longitudinal axis. Just as soon as one builds up properly the posterior wall and carries the perineum forward he has an oblique posterior vaginal wall, which, of course, is the natural condition in the unimpregnated or undelivered woman.

I do not believe the criticism of the essayist is fair when he eliminates hysterectomy. I have been particularly pleased with the operation of hysterectomy in cases of prolapsus. I can agree with him when he says that a hysterectomy should not usually be performed in the child-bearing woman, but I see no reason why the uterus should not be taken out when it is prolapsed in people beyond the menopause, and particularly when it is associated with a lacerated cervix and probably with suspicious ulceration, and perhaps, too, where there is also tubal and ovarian mischief combined. If all these exist in a young woman, I maintain it is often good surgery to remove the uterus.

So far as the mortality is concerned, I really don't believe that there should be any mortality in any uncomplicated vaginal hysterectomy. I have made five vaginal hysterectomies in the last three months for this condition, and these patients all got up on the tenth day, and left the hospital inside of three weeks.

The essayist has brought to my attention something I did not know. I have been a strong advocate of the Alexander operation in the treatment of uncomplicated retroversion. I did not realize that the round ligaments were a very important factor in the elevation of the uterus. The round ligaments bring the uterus for-

ward and in bringing it forward may elevate it a little, and I can understand by bringing it forward it may help the prolapsus, because it cures the retroversion. I do not believe, however, that the round ligaments are especially capable of elevating the uterus or holding it up in place when prolapsed. When it has been necessary for me to go into the abdominal cavity in the treatment of retroversion I have usually adopted an idea I got from Dr. Price, who is so strongly opposed to ventrofixation.

It is this. In picking up a tube or ovary engage in the bite of the ligature a loop of the round ligament, with the peritoneum of the broad ligament covering it, and when you tighten the ligature you will also close fast the round ligament and thus shorten the length of the loop you took in the bite.

I think the classification I made in my paper some years ago was really a good, practical one—dividing them into cases that are complicated and uncomplicated. The treatment of a complicated case would involve opening the peritoneal cavity, while the treatment of an uncomplicated one would not.

With regard to cases of extreme procidentia the uterus must be removed. It matters not how well you do the plastic work on the perineum, and anterior and posterior walls of the vagina, nor how thorough it is, you will have to open the peritoneal cavity in the bad cases to bring the separated ends of the broad ligament together, and sew them into the anterior incision, in order to hold up the prolapsus of the bladder and the descending rectum. When the uterus is out, by bringing the divided ends of the broad ligament together and sewing them onto the abdominal wall like a pump handle, we do a rectopexy as well as bladder elevation. I do not believe that simply restoring the descended ballooned vagina together with an Alexander operation will cure these cases of extreme procidentia, where the intestines and half of the abdominal viscera are in a state of pelvic hernia —in fact, only the most complete plastic surgery with the greatest amount of denudation of tissues and hysterectomy can accomplish the result, and even then we very often fail.

Dr. Hugo O. Pantzer, Indianapolis.—I have followed the reading of this paper with great interest and pleasure. The essayist, in presenting the subject, takes note of all the elements that enter into the production of prolapse. The procedures advocated are such as I would most fully endorse. I feel that there is one class of cases that should have an additional structure attended to. It is that class in which the retrouterine ligaments, or I had better say muscles, have been lacerated, and where as a consequence we have a prolapse not only of the uterus, but also of the upper part of the rectum. In many of these cases, if we look to the regular evacuation of the rectum, we will find that the symptoms are much abated. In addition, therefore, to the procedures that have been advocated in this class of cases, this additional structure should be attended to.

The point made by Dr. Hayd with regard to bringing the uterus

forward, in that way placing it at a right angle to the vaginal canal, I found is worthy of recommendation.

Dr. Ernst Jonas, St. Louis.—I agree with Dr. Keefe that in moderate cases of procidentia the combination of anterior colporrhaphy and perineorrhaphy with the Alexander-Adams operation or other methods of shortening the round ligaments, will be sufficient to cure the condition. I agree, too, with Dr. Hayd, that in the more advanced cases this combined operation will not suffice. In these advanced cases we used to remove the uterus, just as Dr. Hayd has done, but more recently we have always combined with this operation a very high perineorrhaphy, which is essential in these cases whenever the uterus is removed for the relief of the condition. I have given up this operation recently, although I was fairly satisfied with the results. Our present method was devised by Wertheim and usually goes by his name. The operation is simply this, that after making an anterior colporrhaphy and pushing back the bladder, the peritoneum is opened and the uterus is put in front of the bladder underneath the anterior vaginal wall. In the child-bearing period this operation must be combined with ligation and resection of the tubes. After child-bearing period it is unnecessary. I think this operation gives the best results of all operations for total procidentia of the uterus. Originally, Wertheim did not entirely cover the uterus with the anterior vaginal wall, but left a part of the anterior surface of the uterus to granulate over. The way this operation is done by most who favor it, as advocated especially by Doederlein, is to sew the uterus over entirely with the residue of the anterior vaginal wall. This makes a neater operation.

Dr. O. H. Elbrecht, St. Louis.—In connection with this discussion I would like to mention the history of one case in which I did both operations that have been described—a woman, 23 years of age, with complete procidentia and ulcerated mucus surfaces on both sides of the uterus. After healing the ulcers, I did the usual plastics, *i.e.* anterior colporrhaphy, posterior colpoperineorrhaphy, and amputated the cervix and did a ventrofixation. She felt well for a time and a year later she was confined without any complications or laceration. It fell to her lot to be compelled to support two children, and she had to work hard. Her work brought on a recurrence, and she came back to me, wanting to know whether I could do anything to relieve her. In the meantime, I had adopted the Freund-Wertheim operation in my work but have not had time to observe the end results. I then did the Freund-Wertheim operation on this woman, upon whom I operated three years before by the combined method.

This woman came back to me several weeks after being discharged from the hospital and told me she was working harder than ever, and that she felt much stronger and better in every way than she did and she surely ought to be able to tell the difference between the two operations, so far as comfort is concerned.

I am not making this as a positive statement, but I believe I have had two cases in which I think Dr. Hayd and Dr. Pantzer would have done hysterectomy, but I did the operation I have mentioned on them, and I am going to watch the result. The uterus in this operation acts as a dam for the intraabdominal pressure, which ordinarily pushes the uterus and vagina out. We all know the uterus has to go into retroposition in order to make its descent. By fixing it anteriorly it cannot even start to descend, as any intraabdominal pressure squeezes it against the rectum. In order to get any descent whatever, we would have to have a complete pelvic hernia. With these cases you shorten the anterior vaginal wall, and as you have a lot of scar tissue which holds firmly, it acts as a dam to the uterus. The uterus is in exactly the opposite position to what it was in the first position of its descent. This operation, I believe, will replace all our old plastics and ventrofixations for procidentia, also the Alexander operation in this connection.

Dr. Rufus B. Hall, Cincinnati.—I believe that the essayist's conclusions are correct in treating these cases, excepting those of extreme degree, such as were referred to by Dr. Hayd particularly. I wish to endorse very much of this paper. I disagree, however, with the essayist in one particular—to take these extreme cases we see three or four or ten years after the menopause, where the uterus is outside of the body, so to speak, and has been perhaps for years, many of them will go on until there is great ulceration of the cervix and chafing. Now, I believe the best results can be obtained in these cases, first, by dividing the operation into two stages. I grant you that many operators will object to that, because it is unnecessary time to lay up for the patient, but no loss of time in these conditions is to be regarded if it will bring end results. I believe, therefore, we can get the best results by first doing a complete extirpation of the uterus through the vagina. These patients are usually heavy, fat women, weighing anywhere from 150 to 200 pounds. They are old women, and opening the abdomen is not so easy on them as doing a vaginal hysterectomy. Then, too, in doing a hysterectomy the technique of it is of some importance. In these cases in which there is great relaxation, there is no difficulty in getting the uterus out, and there never should be a primary mortality from the operation. Sometimes, of course, we may get a death from complications from the anesthetic, but rarely, and now and then we might get a death from imperfect or defective technique. In the technique of the operation we should utilize the round ligaments and the broad ligaments, when we have cut them as close to the uterus as we can, doing the operation by ligature throughout. We should catch the round ligaments back to such a point, so as to bring them taut together and tie them with catgut. Utilize the extra ends, sew them together, and make a bridge. I use the posterior portion of the tissue and make a diaphragm there. In other words, I close the peritoneal cavity above the ligatures.

SERIES III—COMPLETE PROLAPSE (Continued)

Case No.	Age	M. S. W.	Condition Before Operation	Symptoms	Date of Operation	Operation	Discharged	Position of Uterus	Subsequent History
4	30	M	Prolapsus third degree; lacerated cervix and perineum; hemorrhoids.	Prolapse; pain in back; bleeding piles; leucorrhea.	1897—Sept. 13	Curettage; trachelorrhaphy; perineorrhaphy (E); Alexander (Abbe); Clamp and cautery.	Oct. 3, primary union.	Good posit'n.	
5	42	M	Prolapsus third degree; 1" outside vulva; lacerated cervix and perineum; cystocele and rectocele.	Frequent micturition; incomplete control of bowels; general indisposition.	1898—Mar. 19	Curettage; trachelorrhaphy; perineorrhaphy; ant. colporrhaphy; Alexander (Abbe)	April 18, primary union.	Good posit'n.	
6	27	M	Prolapsus third degree; lacerated cervix and perineum.	Bearing down pain; uterus protrudes at times; headache; vesical irritation; pain in legs; leucorrhea.	1898—Oct. 1	Curettage; trachelorrhaphy; perineorrhaphy (E); Alexander; (Kelly) modification.	Oct. 20, primary union.	Good posit'n.	Feb., 1900: Boy born. Sept., 1901: Boy born. Exam'd Feb. 14, '03, uterus in normal position; cyst of perin'm.
7	61	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Mass in vagina comes outside, hinders walking; leucorrhea; frequent micturition.	1899—May 2	Curettage; ant. colporrhaphy; trachelorrhaphy; perineorrhaphy (E); Alexander.	June 3, primary union.	Good posit'n.	No trouble since operation. Good result.
8	26	M	Prolapsus third degree; lacerated cervix and perineum.	Complete tear of perineum with first child; operation; torn with second child; operat'n	1900—Mar. 27	Curettage; amp. of cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	April 25, primary union.	Good posit'n.	Dec. 31, '02: Child born, normal labor. Jan. 3, '03: U. normal position; slight tear perineum. Right vulva vaginal cyst.
9	41	M	Prolapsus third degree; lacerated cervix and perineum; rectocele and cystocele.	Five miscarriages; prolapse.	1900—Aug. 23	Curettage; amp. of cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	Sept. 19, primary union.	Good posit'n.	Aug. 8, 1907: Patient has enjoyed good health since operation. No return of previous trouble.
10	32	M	Prolapse third degree; 1" outside vulva; lacerated cervix and perineum.	Four miscarriages; falling womb.	1901—April 2	Curettage; trachelorrhaphy (E); ant. colporrhaphy; perineorrhaphy; Alexander.	May 13, primary union.	Good posit'n.	Jan. 2, '02: Uterus in good position. March, '05: Cervix 3" from outlet vagina. Aug. 21, '07: Uterus in good position No prolapse. Menstruation regular.

11	42	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele; hemorrhoids.	Weakness in perineum; general indisposition; vesical irritability.	1901—Aug. 29	Curettage; amp. of cervix; ant. colporrhaphy; perineorrhaphy; Alexander; clamp and cautery.	Sept. 30, primary union.	Good posit'n.	Jan. 11, '03: Perfectly well since operation. No urinary symptoms as before. Uterus prolapsed, cervix 1" within vulva. Vesicocele.
12	45	M	Prolapsus third degree; ½" from vulva; lacerated cervix and perineum; cystocele.	Backache; headache and weakness; cannot walk far or lift.	1901—Sept. 3	Curettage; trachelorrhaphy; ant. colporrhaphy; perineorrhaphy (K); Alexander	Oct., primary mary union.	Good posit'n.	
13	34	M	Prolapsus third degree; lacerated cervix and perineum; cystocele; hemorrhoids; left inguinal hernia.	Weakness; foreign b'dy between thighs; incontinuence of urine.	1901—Nov. 5	Curettage; ant. colporrhaphy; perineorrhaphy (E); clamp and cautery; Alexander, with repair of hernia.	Dec. 5, primary union.	Good posit'n.	Jan. 23, '03: Marked cystocele. Cervix 1" within vulva. uterus large.
14	57	M	Prolapsus third degree; lacerated cervix and perineum; hemorrhoids.	Complete prolapse; unable to replace uterus.	1902—Jan. 14	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (P); clamp and c't'ry.	Mar. 15, primary union.	.....	Jan. 15, '03: Excellent result. Uterus in normal position. Patient never felt better.
15	62	M	Prolapsus third degree; lacerated cervix and perineum.	Complete prol'se; pain in back and sides; constipation.	1st, '02, Dec. 2 2d, '03, Feb. 7	Alexander; vaginal hysterectomy. Ant. colporrhaphy; perineorrhaphy.	Dec. 25..... Mar. 14.....	....	
16	44	W	Prolapsus third degree; hypertrophied cervix; lacerated perineum; cystocele.	9 mos. ago strained and felt something give way; back and headaches; weakness.	1903—May 26	Curettage; ant. colporrhaphy; perineorrhaphy (E); Alexander.	June 19, primary union.	Good posit'n.	
17	33	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Womb comes down; head and back aches; flows considerably; constipation.	1903—June 6	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	July 2, primary union	Good posit'n.	Feb. 8, '04: Two months pregnant. Uterus in normal position.
18	32	S	Prolapsus third degree; elongated cervix.	Pain in back and sides for 15 weeks; headaches.	1906—July 2	Curettage; amp. cervix; Alexander.	July 26, primary union.	Good posit'n.	Aug. 27, '07: Cervix 1½" long. Sound passed in normal direction. Uterus felt above pubes.
19	38	M	Prolapsus third degree; lacerated cervix and perineum; cystocele and rectocele.	Dragging pain in back; leucorrhea; prolapse 1".	1907—July 7	Curettage; amp. cervix; ant. colporrhaphy; perineorrhaphy (E); Alexander.	July 30, primary union.	Good posit'n.	

PHLEBITIS FOLLOWING ABDOMINAL OPERATIONS.

BY

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THE occurrence of so distressing and unlooked for a complication as thrombophlebitis toward the last days of an otherwise gratifying and cheerful convalescence, following a serious surgical operation is to the surgeon not unlike encountering the skeleton at a feast, and his feeling of chagrin is not devoid of a certain element of humiliation. It is one thing that he has scarcely considered in making the prognosis, and to the patient it is as a bolt from the clear sky. The suffering which accompanies it, and the entailed disappointment of being consigned to the bed for six weeks longer, seldom fails to arouse a feeling of rebelliousness on the part of the patient, and one akin to exasperation on the surgeon's part.

The estimate of Cordier as to the frequency of this very unpleasant complication is no doubt near the truth, as many surgeons of whom I made inquiry gave calculations which strike about the same average—that is, that in abdominal operations the occurrence of post-operative phlebitis is noted in about 2 per cent. I believe this to be expressive of a fairly conservative judgment, as no doubt many cases of a mild type are entirely overlooked, and then there is a class of cases which may properly be considered as of the same pathology, but which are not so readily demonstrated. I refer to those cases which, at the end of ten days or two weeks, begin to suffer more or less severely with intrapelvic pain, and about which no information is yielded to the examining touch, and which is generally termed "irritable stump," or a little later "adhesions," and the like, the individual being urged to be patient and to wait awhile, in the meantime tolerating massage and hot vaginal douches. After some weeks the symptoms disappear, and, while some uncertainty as to the pathology remains, it seems plausible to regard them as of phlebitic origin.

If such an untoward occurrence is to be met with in anything like the 2 per cent. which is pretty generally admitted, the subject

certainly merits the serious consideration which it has of late been receiving. If the etiological factors once come clearly within our grasp, something practical in the way of prophylaxis may eventually be formulated, in which direction already much has been done that is encouraging. It is but a few years since any sort of inflammation or elevation of temperature following a surgical operation was fully accounted for in the mind of the conscientious surgeon by the one word "infection;" but to-day we know the matter is not so simple, and in many instances it is difficult to ascribe any influence in the production of phlebitis to infection; at least the bacterial invasion is in most cases only operative in conjunction with peculiarly inviting conditions of the blood.

The many conditions which are known to cause phlebitis independently of surgery have a direct bearing in this consideration when, as frequently happens, operations are performed on individuals who are the subjects of such disorders; for instance, phlebitis of syphilitic or rheumatic origin may develop during the convalescence from an operation with which there is no etiological connection whatever. Many cases of appendicitis which have been neglected develop phlebitis, and notably pyephlebitis with liver abscesses, are finally operated on, and the dire results are charged against the surgeon.

An individual may be the victim of a septic thrombosis, the result of procrastination, ready to become detached on the slightest disturbance of the affected parts, and carried into the portal circulation. The much needed operation is performed, the septic charge is fired into the liver with disastrous results, and the luckless surgeon is again charged with little less than crime. We will all agree with Gerster that in such cases a thorough post-mortem examination is due the operator.

Phlebitis is sometimes the result, and in other instances the cause of thrombosis—the original clot depending upon either a change in the blood itself, or upon some damage inflicted upon the vein wall, whether from inflammation or traumatism. Going back to Hunter, we are reminded that "the fluid state of the blood is connected with the living vessels, which is the natural situation, and with motion," and that when not circulating it is not subject to the same laws that govern the circulating blood. Slowing of the blood current, however, is not in itself sufficient to cause thrombosis, as Baumgarten has shown that healthy blood will fail to coagulate after many weeks, though shut off from circulation when confined between two carefully applied ligatures. We must

evidently have some further departure from the normal conditions than mere slowing of the current in order to produce thrombosis.

An increased tendency to coagulation is noted in many debilitating diseases, such as tuberculosis, and following typhoid fever. There are also other circumstances not thoroughly understood that are the cause of blood changes which greatly increase the tendency to coagulation. Traumatism, damage of any sort, may be the determining factor in producing thrombosis; incisions, contusions, burns, suppuration of adjacent structures which thereby interfere with the integrity of the vein wall are all to be regarded as etiological factors.

Phlebitis, the result of infection, may undoubtedly exist without the formation of a thrombus, and conversely a sterile clot may be formed in a vein and give rise to no inflammation whatever. But, if changes have occurred in the blood favorable to the production of thrombosis, the inflamed vein wall will prove to be the determining cause of coagulation. And again, if a thrombus from any source, whether traumatism or disease, be in any degree infectious, a true phlebitis is sure to follow. Normal blood may tolerate a given amount of bacterial invasion without a resulting thrombus. It remains to be determined just what changes are involved which result in that state of the blood which is so prone to develop thrombosis when acted upon by the necessary trauma or the infection.

Wright of London has demonstrated that in the acute stage of typhoid fever the coagulability of the blood is decreased—twenty minutes being required to produce the clot—while during convalescence the coagulability is greatly increased, the clot forming in 4½ minutes. He also states that the blood of convalescent typhoid patients contains twice the normal amount of lime salts, and he points out that this is to be noted as the condition of the blood after a prolonged restricted diet, chiefly of cow's milk, which is more potent to produce this condition than is lime water. The suggestion is made (based upon several experiments) that the administration of citric acid as a decalcifying agent would, with some degree of certainty, reduce the coagulability of the blood in such cases. Thirty-six grains three times a day brought the lime salts below the normal and proportionately reduced the coagulability of the blood. If the fibrin ferment be shown to possess its dangerous efficiency only in the presence of an overcharge of lime salts, a step in advance will have been made.

Why the trouble occurs in the vast majority of cases on the left side is a question which is still not satisfactorily answered. In the

case of the ovaries we account for the preponderance of left-sided disease on account of the proximity of the rectum. And some attribute as a cause of the frequency of left-sided affections in general the supposed lesser resistance of that side to the inroads of disease, believing that the greater resistance of the right side is a shield of safety. This theory, however, falls to the ground at least in arterial thrombosis, which occurs under a variety of circumstances, and with no predilection whatever for either side, the cases being of about equal occurrence in the two sides. The most plausible reason for the occurrence of the trouble so generally on the left side is to be found in the anatomical relationship of the pelvic vessels, the left common iliac vein passing beneath the right iliac artery, and apparently receiving pressure from this source. The prolonged recumbent posture, with slowing of the blood current, no doubt has much to do with the production of thrombosis, and there is considerable room to believe that much may be gained by allowing the patients to get out of bed earlier than has heretofore been the general custom. Dr. W. J. Mayo tells me that formerly phlebitis followed his abdominal operations in about 2 per cent. of the cases, but that since getting patients up and about by the end of the first week they have observed a reduction in the percentage to about one-fourth of 1 per cent.

In conclusion, it seems to me that we are justified in accepting as facts:

First.—Many of these cases are simply extensive aseptic blood clots, without any true inflammation.

Second.—An abnormal plasticity of the blood must be present in order that thrombosis may be the result of surgical traumatism.

Third.—The clot generally receives a mild form of infection introduced into the wound at the time of the operation, and in turn an invasion of the vein wall results.

Fourth.—As stagnation is such an important element in the etiology, getting our patients up earlier will undoubtedly reduce the liability to thrombosis.

Fifth.—As an abnormally high degree of plasticity of the blood is essential in developing the disorder, the blood ought to be tested by some recognized standard in every case, and, if found in a dangerous state, operation should be postponed until medication shall have brought it back to a normal condition.

DISCUSSION.

Dr. Herman E. Hayd, Buffalo.—There must be a great susceptibility on the part of some women and some men to phlebitis or it would not be so common after the most trivial undertaking or operation. I have a woman in bed with postoperative phlebitis, on whom I operated four weeks ago for a simple recurrent attack of appendicitis. The wound healed kindly, without any evidence of irritation or pus. She is also married and sterile. She had been married for a number of years, and was anxious to have a child. I found the tubes and ovaries, so far as I could make out, healthy. There was no history of gonorrhea, either on the part of the husband or on the part of the wife. I dilated the cervix and curetted and put in an intrauterine stem, as the cervical canal was small. The vaginal work was done with just as much care as the work above. The stem was thoroughly boiled and there was no question as to the possibility of an infection, so far as it was evident to me. I did the curettage before I performed the appendix operation, and I wore gloves, so that my hands were perfectly sterile for both operations. She left the hospital at the end of two weeks, walked upstairs to her apartment, and the next day she complained of pain in the calf of her leg. I was immediately suspicious of phlebitis, and two days later the left thigh was two and one-half inches larger than the right. I think the phlebitis came from the vaginal and not from the abdominal work, but it is possible it may have come from the latter. Nevertheless, I cite this case to show that such a trivial undertaking as a curettage and the introduction of a vaginal stem, under the most careful precautions, may result in the production of a phlebitis, and probably this woman will be in bed five or six or possibly eight weeks.

Dr. Joseph Price, Philadelphia.—Wherever much acrobatic surgery is practised, phlebitis is almost sure to follow. I have noticed with regret and great anxiety that in certain institutions a great deal of prominence is given to the use of binders, crutches, and retractors. For instance, assistants use retractors in such a way that no wonder phlebitis follows operations. In one institution they have had forty-eight cases of operative phlebitis, twenty-five of ileus, and eighteen cases of ether pneumonia.

Some of the speakers, in discussing this subject, have referred to certain surgeons who not only believe in but recommend the early getting up of patients after operations. I have no doubt that phlebitis follows in many instances from too early getting up. Other surgeons prefer to keep their patients on their backs in bed after operations because they were very ill, emaciated, and practically dying before operation, some of them having been brought in on stretchers, too far gone to walk. Let us take a group of cases operated on by good surgeons, who take ad-

vantage of the hospitals and of good nurses to keep the women in bed for three or four weeks, giving them the benefit of the rest cure after complicated and serious operations. In a series of such cases the results are excellent, and the surgeons who are doing that kind of work scarcely know what phlebitis is. Personally, I have not had a case of phlebitis for five or six years. I do not know what it is really, and it pains me to hear men talking about this early rising of patients after operations, which is now so commonly practised. I look upon it as a variety of criminal assault on patients. I know that phlebitis is common in some hospitals, while it is very rare in others. There are many surgeons who never see postoperative phlebitis. They know very little or nothing about it.

Speaking of anesthetics and of ether penumonia, I wish to say that I have no fear of the anesthetic whatever. I have no fear of heart lesions. It is frequently said, when a patient is brought to us for operation, that she has a weak heart, and many patients are turned down on account of the condition of their hearts. I believe that ether is a good thing for the heart. It is a good stimulant, and when the surgeon has a good anesthetizer he need not be afraid to operate on a man or woman who has a weak heart. From a clinical point of view, I know that phlebitis is a common complication in some institutions, particularly in those where retractors and other instruments are not used with gentleness. I never use a retractor. I do not own one. I will say that my attic is full of binders and crutches brought from Birmingham and London, but they are kept there because they are object lessons to medical students. It is a comfort to a patient to have someone hold the leg rather than to put it in a binder or a holder, and personally I would throw these binders and crutches into the junk shop. The teacher, however, who robs resident physicians of hospitals of that object lesson is dong them a gross injustice. Phlebitis has been attributed to the use of binders, crutches, and retractors. A retractor is a good thing to give an object lesson with. If I were a teacher, I would use the Trenelenburg position as well as retractors to give object lessons. I think it is the duty of teachers to do this, so as to rub it into the students. We need operators and we need them badly.

The author has presented this subject in an admirable way, and I am glad it has given us an opportunity to express ourselves from entirely different points of view. But if we practice what Dr. Morris has so beautifully illustrated, and taught in his object lessons—namely, avoid germs and banish them, if possible, and do clean surgery, we will know but little about phlebitis.

Dr. Robert T. Morris, New York.—I have had two cases of left-sided phlebitis after operation on the appendix in the interval, and have found it difficult to explain the occurrence of it in these two cases.

DR. HAYD.—In my case the phlebitis was on the left side.

DR. PRICE.—Did the patient have the pelvic variety of appendicitis?

DR. MORRIS.—The iliac. Primary union occurred, and everything else was normal, so far as I could see.

DR. BALDWIN.—Have you not seen phlebitis in cases of appendicitis in which no operation has been made?

DR. MORRIS.—I have seen it occur without any evident infection in the case.

DR. BALDWIN.—In simple cases?

DR. MORRIS.—Yes. These were two interval cases I have mentioned, and so far as I could tell there was no infection.

DR. BALDWIN.—Some years ago I was called to see a case of appendicitis in consultation in a young boy. The trouble about the appendix subsided in a few days completely, but phlebitis developed on the left side, which ran its usual course. The case was interesting. We rarely see cases of phlebitis in obstetric work, which is commonly called by women milk leg.

DR. JOSEPH PRICE, Philadelphia.—The chapter in Dr. Kelly's book on the pelvic variety of appendicitis is admirable. He says that if the appendix goes below the ileopectineal line, we have phlebitis following, because there we have infection and irritation of the hemorrhoidal plexus of vessels, and possibly other complications. If we find a left-sided appendicitis, according to Kelly, the risk is very great, but in the pelvic variety the patient will have symptoms of old-fashioned bellyache and colic, so that it is a difficult diagnosis for the ordinary practitioner to make. As long as the patient has pain on the right side, the general practitioner is able to make the diagnosis, but when the symptoms are joined with the symptoms that occur from the appendix being below the ileopectineal line, then he is absolutely lost, hence we get these patients on the sixth or seventh day, and in addition we will generally find at the operation a dirty pelvic cavity.

DR. HERMAN E. HAYD, Buffalo.—It may have been the intrauterine stem that caused the phlebitis in my case. Phlebitis is comparatively common after slight lacerations of the cervix during labor, but since Dr. Morris has cited cases exactly like my own, I am at a loss to say whether it was the appendix operation or the traumatism about the cervix that caused the phlebitis.

DR. JOHN W. KEEFE, Providence.—It seems to me that we know nothing as yet about the cause of phlebitis. I would like to cite a case of hernia in a woman on whom I did a Bassini operation. The operation was absolutely clean; it was done in fifteen minutes; yet a left-sided phlebitis occurred, and within two weeks a right-sided phlebitis followed. At no time was there any suppuration or redness about the hernial wound.

DR. EDWARD J. ILL, Newark.—For a number of years I had no cases of phlebitis, and then there came eight cases in suc-

cession in one winter. These cases were operated on in several hospitals, and in private practice. None of my assistants (and there are eight of them) had a single case of phlebitis following their operations, and I had them all. I thought I was at fault in some way or other. The operations were clean and I operate more quickly than any of my assistants, and still there was something that caused phlebitis in those cases. I am rather inclined to think that it is a septic condition. I have seen it follow five weeks after a simple appendectomy. What the nature of it is, however, I hope to learn sometime, as well as the rest of you, but at present I do not think we know, and I trust the essayist will be able to substantiate his opinion that it is a peculiar condition of the blood. That was the excuse we had formerly for its occurrence. Personally, I think we had better look to ourselves. If Dr. Price has not had a case of phlebitis in ten years, those of us who have seen him operate will understand why it is. His assault upon the patient is the mildest possible, but we cannot all do that.

Dr. Hugo O. Pantzer, Indianapolis.—I wish to commend the paper for its clear and convincing argument. I feel, however, that a possible exception to the early rising of patients should prevail after an infectious disease, whether it be a preoperative or postoperative infection. Most of our cases of phlebitis are aggravated as soon as the patients get up. In some instances the phlebitis does not develop until the patient begins to sit up.

Dr. Pfaff (closing the discussion).—There is very little I want to say in closing. In reply to the remarks made by Dr. Price, I am really surprised to learn that he has not had a case of phlebitis in ten years. This makes it incumbent upon us to try to achieve approximately the same results, or we must blame ourselves. I think certain factors in the etiology are going to be cleared up in the future, for the reason that Wright is too good a man for us to take lightly any statement that he may make. Traumatisms of one kind or another are inevitable in all cases. But phlebitis does not always follow an operation in which considerable traumatism has been inflicted. Sepsis is also inevitable, and it is not the septic cases that always give us phlebitis, but it is the simple, easy cases, where we have done a clean septic operation; where we have done a twelve or fifteen minute abdominal section, inflicting very little traumatism, and yet phlebitis occurs in that kind of a case. If we have got to put up with traumatism, if we have got to put up with sepsis, then it will be a comfort to us to feel that after all it is primarily the condition of the blood that induces this disorder.

FORMATION OF AN ARTIFICIAL VAGINA BY INTESTINAL TRANSPLANTATION.

BY

JAMES F. BALDWIN, M.D.

Columbus.

In the *Annals of Surgery,* September, 1904, I described a method which I had devised for the formation of an artificial vagina in cases of congenital or acquired absence of that organ. The case which then I had on hand was that of a young married woman who, as the result of sloughing in connection with her first confinement, had suffered complete destruction of the entire vaginal canal. She refused to have the operation which I suggested performed and passed from observation; but as the method which I had worked out was new, and seemed to me entirely feasible, I published it as mentioned.

Many surgeons have tried to construct a new vagina under conditions such as I have suggested, but all of them have attempted to make it by lining the canal which they had made between the bladder and rectum with flaps of skin taken from the inside of the thighs, or from the neighborhood of the vulva. In all the cases which have been reported there has been practically complete failure, owing to the contraction of the artificial canal. I need not go into a discussion of these methods, which are familiar to all.

The method which I suggested was designed to utilize for the lining of the new vagina the sigmoid flexure of the colon, or a loop from the lower end of the ileum. The abdomen was to be opened and the sigmoid, or loop of ileum, seized near its center by forceps introduced from below through the new canal and drawn down to the perineum. The piece of bowel thus drawn down was next to be detached, with the usual precautions, by a transverse incision through the gut, but without injuring the vessels in the mesentery, the continuity of the bowel being at once restored by anastomosis. One end of the detached loop would then be inverted and closed by a continuous suture, not penetrating the mucous membrane. By pulling up the fundus of the

uterus until the cervix was exposed in Douglas's cul-de-sac (or, if the cervix were absent, the opening into the uterus found), the other end of the bowel would be attached around the cervix by interrupted sutures, so as to form a canal for the uterine discharges. The abdomen would then be closed in the usual way, with, if desirable, a drainage wick introduced from above downward through the new canal and just below the loop of intestine. Finally, the patient being placed in the lithotomy position, the loop of bowel still held by forceps would be opened, the bowel cleansed as necessary, each limb of the loop packed with iodoform gauze, and the edges of the opening in the bowel attached to the surrounding skin.

At the completion of the operation a double vagina would be formed, each canal being approximately of the size of the bowel selected, and with the nutrition positively provided for by the integrity of the mesentery. The gauze would be removed and replaced from time to time as necessary, and at the end of ten days or two weeks the septum between the vaginas could be easily removed by clamp pressure. Such a vagina would be of ample size, would be lined with normal mucous membrane, would not materially contract, and would serve every purpose save that of childbirth, and it would hardly be prudent, perhaps, to absolutely deny the possibility of a birth through such a canal, considering the ample capacity of the colon under certain circumstances.

With this proposed operation in mind, I took pains in a large number of abdominal sections, to note the available amount of slack which could be found in the mesocolon of the sigmoid and the mesentery of the ileum. I always found that the slack was ample for the purpose suggested, and in one instance I was able to carry out this procedure on the body of an adult male a few moments after his death, and while the parts were still in practically a living condition. In this instance I found in both the colon and the ileum amply slack to be used for the purpose named.

I carried out this procedure March 22, 1907, in all its details on a patient aged 38, who some eight months before had been delivered by forceps of her first child. Following the delivery there had been complete sloughing of all the vaginal tissues. All that was left was a sinus so small and so tortuous that it could not be followed by the finest probe. The patient was menstruating with fair regularity, but the function was performed with great pain owing to the difficulty of extruding the blood through this tortuous canal. She was in fairly good flesh, so that any

abdominal operation would be attended with more than the average technical difficulties.

The operation was made in the presence of Dr. M. Jones of Oakhill and Dr. Wardlow of Columbus. In making the new vagina the parts were separated with a good deal of difficulty owing to the amount of cicatricial tissue present, and the rectum was accidentally wounded. The wound was closed at once with fine catgut, and gave no further trouble in the progress of the case. The details of the operation were carried out, as had been

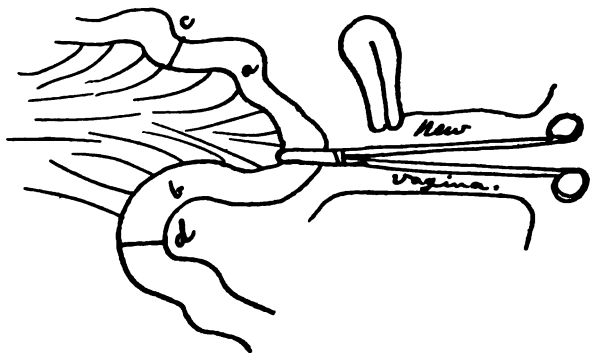

Fig. 1. *a*, *b*, Sigmoid; *c*, *d*, points for section.

previously planned. On opening the abdomen some pelvic adhesions were found, which had to be separated. The uterus was found in a normal condition, but a double hematosalpinx was present. On the left side the ovary was somewhat enlarged and intimately connected with the corresponding tube. This ovary, therefore, and both tubes were removed. The cul-de-sac was then opened, but absolutely no portion of the vagina was present. The artificial passage which had previously been made was therefore enlarged and extended freely. A loop of small intestine (the lower end of the ileum, as this seemed to have the greater freedom of motion) was then seized with forceps, introduced through the vagina, and having been detached from the rest of the bowel was drawn down into the new canal, the continuity of the intestine being restored by means of a Murphy button. As the uterus was rather fixed in position so that it would be quite difficult to attach the cervix to the bowel in making the new vagina, and as the uterus would have no function further than the carrying on of menstruation, it was removed in the usual way, leaving the right

ovary. The peritoneum was drawn over the floor of the pelvis so as to leave this intact.

Healing of the abdominal incision took place by first intention, and the tissues in the perineum united with equal promptness, except at the point where a drainage wick had been passed from above down. This healed as soon as the drainage wick was removed. The entire series of operations required two hours, but in a patient with thinner abdominal walls, and with the experi-

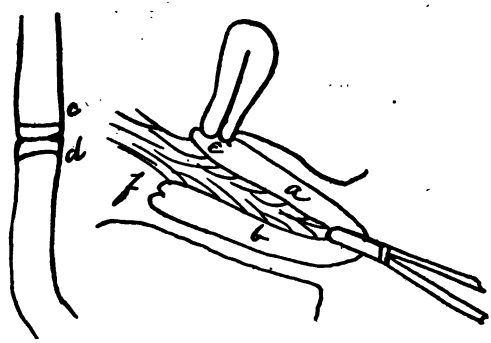

Fig. 2. *a, b,* Sigmoid drawn into new vagina; *c, d,* anastomosis; *e,* attachment of one end to cervix; *f,* closed end.

ence gained from this case, the time could be very materially reduced.

May 1 the septum between the two vaginas was cut with scissors, light packing introduced, and the patient returned to her home May 4 in excellent condition. The Murphy button passed on the tenth day after her operation. August 18 the patient consulted me and was feeling perfectly well. All her pelvic symptoms had subsided, and her only complaint was that occasionally her bowels were a little loose and that there was at times a little difficulty in holding her urine. This difficulty she had had before her operation, so that the operation itself was not in any way responsible for it. Her power of retention was increasing, and will doubtless ultimately be entirely recovered. Vaginal examination showed everything in fine shape. At the extreme upper end of the vagina I could make out a septum, the remains of the original septum formed by the two intestinal walls. The new vagina seemed to be absolutely normal in every way, so that I think no one in making a vaginal examination would have suspected any abnormality. The vagina was capacious in every particular, and showed no evidence of any cicatricial contraction.

With this lapse of time, therefore, since the operation, and with the excellent local conditions which are present, I believe the operation in this instance may be accepted as having been entirely successful. The operation is not one which should be undertaken by a tyro in abdominal surgery, since the operator should understand thoroughly what the different steps of the operation are, and how to carry out promptly and accurately the proper technique. The experienced surgeon, however, should have no special difficulty in carrying it out in all its details, and with no more risk than that attending any other abdominal operation of average difficulty.

DISCUSSION.

Dr. Joseph Price, Philadelphia.—This is a very ingenious method which Dr. Baldwin has described for such an infliction. We have all had experience along this line. For instance, we are commonly asked to repair some horrible traumatic lesion, such as that sustained by a patient following a fall astride an iron fence and splitting the rectovaginal septum. Occasionally we find a little girl who has sustained such an injury that these parts are nothing more than a cloaca. Only recently I had an experience of that kind in a little girl from South Carolina who, in jumping over a porch, fell astride an iron fence and the arrow-shaped portion of the iron rail split the rectovaginal septum, and opened her bladder and vaginal vault. Feeble efforts at closure were undertaken in the midst of filth and hemorrhage, and the tissues sloughed so that all the sutures gave way, leaving fistulæ, both vesical and rectovaginal, without a septum. I succeeded in closing the two fistulas, also the septum, and in relieving her of the incontinence. The child had grown up in a loathsome condition, and at the age of nineteen she recognized and realized the importance of being relieved of a condition that her playmates were not suffering from, and, as I have said, I succeeded, with a pleasing result.

I simply rise to call attention to the possible danger in connection with Dr. Baldwin's operation through these vital bowel structures of coitional traumatisms occurring. Many years ago I made a collection of early marital traumatisms of the external female genitals, and published it as a contribution. If I remember rightly, I collected some twelve or more cases, in some of which there was a considerable contraction of the upper vaginal vault. It would seem that in this operation the risk would be very great, on account of the possibility of the bowel giving way, followed by death from hemorrhage or shock, or from phlebitis.

Dr. Baldwin (closing the discussion).—I do not think there is any likelihood of the transplanted bowel giving way, causing

death from hemorrhage or shock, as suggested by Dr. Price. We occasionally see reports of coitional violence, but in these cases the starting point is usually at the hymen, from which point the laceration may extend until the peritoneum is opened. In other cases there is pronounced disproportion. In using the bowel in the manner I have described, especially if the colon is used, there will be such ample size that I can scarcely conceive of any such accident occurring.

The operation will usually be called for in women who are married, and in whom the vagina has sloughed. In other cases a young woman, anxious to marry, finds that this obstacle is in the way. The dangers of the operation should be fully presented to the patient and then if she elects to assume the risk the surgeon should operate; but as stated in my paper this operation is not one for the surgical tyro to undertake. A surgeon who was present at the time of my operation, and who has himself had large experience in general abdominal surgery, promptly assured me that he would cheerfully turn over all such cases to me, as the operation was too much for him.

SOME OF THE CAUSES OF PAINFUL MENSTRUATION IN YOUNG UNMARRIED WOMEN.

BY

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Baltimore.

1. It is absolutely essential to consider the anatomical conditions existing in discussing this subject.
2. The cause of painful menstruation must be thoroughly understood before we make any attempt to relieve the condition.
3. Does painful menstruation persist to a greater degree in those individuals imperfectly developed or do we find it prevailing as frequently in the athletically developed young women?
4. Do we find the condition as frequently in the individuals occupying the lower walks of life as in those with luxurious surroundings and whose early lives are spent in the nursery, schoolrooom, and boudoir?
5. Does diversion and occupancy of the mind exert any influence to prevent painful menstruation?
6. What relation does nasal catarrh bear to these cases?
7. A congenital thickened condition of the endometrium bears a strong causal relation to the existence of painful menstruation.
8. Painful menstruation is too lightly considered by the family physician and the condition is not dealt with as a pathological condition.

THE subject of this paper is one of great importance to the gynecologist, for it is absolutely impossible to overcome a condition of dysmenorrhea until we recognize the cause existing in the individual cases presenting themselves for treatment. Pain during menstruation is looked upon too lightly by the family physician, who considers that the majority of unmarried women experience pain at the time of menstruation. This class of cases is seldom referred to the specialist for the removal of the cause, which in most cases is unrecognized by the general practitioner.

The patient is told that she must suffer until she enters the marital state, when, if she is fortunate enough to bear children, she will be relieved. We recall the occasion of reading a paper upon the treatment and relief of painful menstruation. A member of the association, in discussing the same, said "he always suggested that the patient should marry, and this he considered the most efficient treatment which he could advise." Not every girl has met the man with whom she would be willing to mate, and frequently these young women, when married, remain sterile because some pathological condition exists in some portion of the

sexual organs, and finally they are compelled to submit to operative measures before they can conceive and bear children.

In the first place, we must understand the anatomical conditions which exist in healthy and normal females. We must understand the physiology of the process of menstruation. So many theories have been advanced as to what occurs at this time which have been proven false, that it is not surprising that we are so uncertain in regard to what does take place at this time. We must first study the female sexual apparatus and understand the structure of the organs concerned, the amount and distribution of the blood supply, the nerves, their origin, with a consideration of the possible reflexes that may be transmitted not only from distant portions of the human frame, but also what impulses and reflexes may be sent to distant portions of the body. These points may be either spinal, encephalonal, or abdominal.

Byron Robinson in his latest work has most clearly outlined the tract of the sympathetic nerve and elucidated how sensations and impulses can be transmitted along this tract. Starting from the brain, we have the first station along this nerve line at the Wrisberg ganglion controlling the action of the heart. The next station is at the celiac ganglion controlling the stomach, kidneys, and liver. Lastly we have the ganglion cervicovaginale, or pelvic brain.

The sick stomach frequently existing during painful menstruation, the excessive action of the kidneys and the liver disorders prevailing at this time are explained. The headaches and the pains in the lower extremities are readily understood. The physiology of menstruation is not satisfactorily explained at this time. Many theories, as before stated, have been advanced, only to be proven false by more recent investigation. Westphalia, Mandl, and Gebhard claim that "at time of menstruation there is a passage of red and white blood cells, whether by diapdesis or by rhexis is not known, through the endometrial capillaries. This blood collects in the superficial part of the endometrium beneath the surface epithelium, through which it finally passes, detaching the epithelium here and there and carrying away small portions. The amount of menstrual blood lost at a single period is said to average four to six ounces."

Compare this description with that of Dalton (edition 1867), "that the blood which escapes during menstruation is supplied by the stroma or lining mucous membrane. It is discharged by a kind of capillary hemorrhage, similar to that which takes place

from the lungs in cases of hemoptysis, only less sudden and violent. The hemorrhage comes from the whole extent of the mucous membrane of the body of the uterus." Landois (edition 1889) states "that the uterine mucous membrane in its entirety is the chief source of the blood. The glands enlarge and the cells undergo fatty degeneration and likewise the tissue and the bloodvessels lying between the glands. This fatty degeneration and the excretion of the degenerated tissue occur, however, only in the superficial layers of the mucosa, whose bloodvessels, when torn across, yield the blood. The deeper layers remain intact, and from them, after menstruation is over, the new mucous membrane is developed. The mucous membrane of the cervix remains free from these changes."

Reichert's theory is that before an ovum is discharged there is a sympathetic change in the uterine mucous membrane, whereby it becomes more vascular, more spongy, and swollen up. The mucous membrane so altered is spoken of as the *membrana decidua menstrualis,* and from its nature it is in proper condition to receive, retain, and nourish a fertilized ovum which may come in contact with it. If, however, the ovum be not fertilized and escapes from the genital passages, then the entire mucous membrane degenerates and the blood is shed as above described. According to this view, the hemorrhage from the uterine mucous membrane is a sign of the non-occurrence of pregnancy. Pfluger considers that the "constant growth of the ovarian cells and the consequent swelling of the ovary subject the ovarian nerve fibers, and through them the spinal cord, to a constant slight stimulation. Through the summation of the stimuli within the cord a reflex dilatation of the vessels in the genital organs is produced; the excessive blood supply leads in turn to a tumefaction of the uterus and frequently to the ripening of a Graafian follicle. Bleeding follows."

James Oliver (London, Eng.), in an article published in the *New York Medical Journal,* June, 1907, endeavors to show that menstruation is neither a manifestation nor yet an association of any process of denudation of the uterine mucosa, and offers as evidence what obtains in cases of chronic inversion of the uterus. "Under such circumstances, as is well known, menstruation may continue to display a periodic tendency, although the discharge related thereto is invariably excessive in amount and usually recurs more frequently than was its wont. Moreover, during the intermenstrual period there transudes from the extroverted en-

dometrium a greater or less amount of serous fluid, which is often tinged with blood. This discharge is essentially a filtration product, and arises from the turgescent state of the uterine tissues generally. The turgor is due to an interference with the nerve and vascular states of the organ, and so pronounced may this interference become that gangrene may set in."

This writer accepts the theory of diapdesis and of a loss of the outer layer of the mucous membrane in patches. He also believes menstruation is closely connected with the nervous system, and that, too, with the sympathetic. A woman whilst menstruating falls down ten to fourteen steps. The flow is at once arrested and fails to return until the next cycle is reached. The oviducts participate in the congestion and when the bloodvessels are distended in the uterus those in the oviducts are in like condition. Thus we have oviductile motion developed. What conditions existing will cause painful menstruation? Displacements of uterus, congested condition of the endometrium where the lining of the organ has become so thickened that the natural processes occurring during menstruation cannot take place. The blood and degenerated epithelium cannot escape by diapdesis and there cannot take place the shedding of the outer mucosa; this failing to occur the blood cannot pass off. The bloodvessels remain distended and the glands continue enlarged after the normal period, for menstruation has passed by. The result is the development of fungoid growths upon the walls of the uterus.

Any cause that will bring about a thickening of the lining of the uterus will eventually produce dysmenorrhea. Contracting cold during the menstrual flow, thereby interfering with involution of the uterus and the consummation of those changes which normally occur in the tissues at this period, is a cause of dysmenorrhea. Shock and mental influences exert a strong influence in bringing about this condition. An imperfectly developed condition of some portion of the sexual organs, any abnormality in development, any vicarious function which may prevail in any of them, will be a cause for painful menstruation. A frequent cause is flexion of the uterus with a contracted condition of the uterine canal at the internal os. A diseased condition existing in the ovaries or fallopian tubes or in the broad ligaments will produce painful menstruation. Tumors or deposits in any portion of the pelvis or lower abdominal cavity will develop dysmenorrhea.

An imperfectly developed condition of the sexual apparatus

is so frequently a cause for painful menstruation that we must recognize it. Malnutrition, anemia, chlorosis, and general physical feebleness must be accepted as a cause in very many cases. These young women marry but remain childless. Menstrual neurosis is so thoroughly recognized as a cause that it is not required that we more than mention it. In these cases the slightest divergence from the ordinary manner of living or the stimulation by any excitement will bring on a premature menstruation attended by pain; the neurosis is transmitted throughout the entire sympathetic system, as evidenced by the excessive action of the kidneys or diarrhea from the intestines, palpitation of the heart, neuralgias of the chest, and cephalalgias with intolerance to light and loud noises.

Young women in attendance at colleges where athletic exercises form a requirement in the curriculum do not suffer from dysmenorrhea to the same extent as those in schools where exercise is perfunctory. Moderate athletics are helpful to young females. I do not approve of the vaulting horse, horizontal bar, nor the climbing ladder, but the dumbbell, light club, and wand exercise are beneficial to young developing women. At "The Margaret J. Bennett Home" in Baltimore, Md., for young working women (mostly stenographers and typewriters), where I have been the attendant and adviser since the opening, we have a well-equipped gymnasium for light calisthenics and insist that a certain period be allotted for exercise. The result has been most satisfactory and the number of the inmates suffering from dysmenorrhea has decreased. In this institution entertainments are provided and the habits of life regulated; besides, the hour for retiring is fixed, the diet arranged so that the greatest nourishment is secured from the food. Each inmate is provided with an individual room, well lighted and heated. Night visiting and chafing dish suppers are not allowed. The health of these young women is phenomenal, and many of the residents who came into the institution broken down and suffering from dysmenorrhea have been built up and their pains relieved. The discipline of the institution is kind, but the young women are compelled to care for their bodies and rest their nervous systems. The result of the surroundings have been marvelous and the result of the discipline most satisfactory.

Dysmenorrhea does not prevail to the same extent in young women in the lower or middle walks of life as among those with luxurious surroundings. The young women taking their exercise

in their carriages or motor cars, whose early lives are spent in the nursery playing with their dolls and toys, whose every desire is anticipated and gratified, are not leading lives to develop strong women mentally or physically. The life at the fashionable boarding school is not conducive to the development of robust bodies and perfect digestion. The wealthy young woman spends the most valuable portion of the night at entertainments, in insufficient clothing and amid scenes to excite her nerves and surroundings depressing to her physical condition. On the other hand, the working girl oftentimes spends her days at the sewing machine or in indifferently lighted and ventilated factories. Her hours are, however, fixed, and if she wills she can rest during the night. She lacks the beneficent and health-giving effects of the sunshine and very frequently her food is not properly prepared or of a nourishing character. Legislation, public opinion, and influence are doing much to overcome this condition in the Eastern States. As professional men it is our duty to take an active part in the great struggle to remove the opprobrious sweat-shop and the vile surroundings of the canning-house.

Diversion and occupancy of the mind does benefit young women. Both of these must be of the proper character. A young woman who has been standing in a department store from 8 A.M. to 6 P.M should not be expected to take a constitutional walk of a couple of miles after her duties are over. She does require diversion among congenial friends. Evening entertainments which allow her to retire at a reasonable hour are beneficial to a young woman's health. The habit of going to the bedroom immediately after a hearty evening meal and spending the time until retiring reading trashy novels does not conduce to the development of a healthy mind or body. The young woman who works during the day requires that relaxation which can be secured by diversion, otherwise a nervous condition will develop which may cause neuralgic dysmenorrhea.

What influence does nasal catarrh and diseased conditions of the turbinated bones exert in producing painful menstruation? With the exception that these individuals are, as a rule, in a low state of vitality, strumous, and with a tendency to develop tuberculosis, we do not consider that there exists any connection between the two conditions. A congenital thickened condition of the endometrium does prevent diapdesis and discharge from the inner layers of the uterine mucosa. In this condition the secretion in the glands is retained and the capillaries are seen elevated

upon the inner surface of the uterus. This gives rise to fungous growths and we have a similar condition which frequently is found in women after childbirth.

These are the cases where curetment accomplishes so much and from the tissues left behind we often have healthy endometrium developed. Curetment should be performed more frequently for the relief of painful menstruation; the result commonly is complete cure of this condition.

In conclusion, we would insist that attention be given to these suffering young women and that we perform those operations which have been so successful in giving permanent relief to this class of cases. The girl suffering from dysmenorrhea is an invalid, unable to meet her friends and engage in those entertainments and diversions in which she is expected to take part. Little sympathy she secures if she does excuse herself on account of not feeling well. And this occurs about thirteen times each year. As men, suppose some painful condition should fall to your lot every twenty-eight to thirty days and last four to five days. Would you not insist that some radical means be made use of in order to be freed from your sufferings? Now do something to bring relief to these suffering young women; dilate, curet, slit their cervices, ream out, or do something else that will bring an end to their pain.

DISCUSSION.

Dr. Bertha Van Hoosen, Chicago (by invitation).—I have enjoyed very much Dr. Sellman's paper, but he has omitted one of the most potent causes of dysmenorrhea, in my judgment, and that is a diseased appendix that makes itself known only at the time of the menstrual period. I think we have all had the misfortune to have seen patients suffering from dysmenorrhea, and in order to try to relieve them we have done an Alexander operation, a curetment, and have tried to correct perhaps the retroversion. We have dilated and curetted the uterus in these cases, and still the patients go on suffering from dysmenorrhea. I have had that experience more frequently, I think, than I ought to have had.

During the past two years I have recognized more and more the importance of making a thorough examination of the appendix, and since I have done that I have had no case of dysmenorrhea that I have not been able to relieve. In every case where the patient has a tender McBurney point, or has had any instrumental attacks made, I feel the symptoms are such that I can surmise disease of the appendix, and I tell the patient even that

she only undergoes a minor operation, and that probably something else will have to be done; that she probably has disease of the appendix, and if she is not relieved by the minor operation an appendectomy can be done later, and in the majority of cases they have preferred to have the appendectomy done at the time of the other operation. In all cases in which I have opened the abdominal cavity for a tender McBurney point, associated with painful menstruation, I have been able to find a diseased appendix.

Dr. Joseph Price, Philadelphia.—I feel that injustice has been done to one of the past-masters in gynecology and pelvic surgery —Robert Battey, of Rome, Georgia. The author of this paper should read Battey's contribution, in the first Transactions of the American Gynecological Society, before publishing his paper, although he has not dwelt on the surgical side of the question particularly. When I read an abstract of Battey's paper, I was not satisfied until I reviewed his early operations, and I find that the same class of cases at present would be dealt with surgically and more successfully than he dealt with them, because Battey did these operations in preaseptic days, and unfortunate conditions or complications followed his operations. But just in this connection I wish to say a word or two with regard to the prominence given to dysmenorrhea and menstrual disturbances. I believe they are greatly exaggerated. I can remember very well that whenever a young woman in the Valley of Virginia got married, she became a mother. The men who married those women were known to be virtuous, free from specific taints, and were proud fathers. I believe early matrimony is the best treatment for all varieties of dysmenorrhea, with the exception of those cases in which pathologic conditions exist. For instance, I have just removed two small dermoids from married women who have conceived. These dermoids complicated their menstrual history, and they are so prone to inflammatory action and adhesions that they should have been removed before they were married. It was with difficulty that I could influence these women to go to the hospital to have these small dermoids removed. They were irregular in outline, and fixed, with some irritation about them. In one of the cases I removed the dermoid while the woman was pregnant, and she afterwards went to term. The patient is now in my private hospital delivered of a healthy living child.

The allusion made by the lady physician (Dr. Van Hoosen) with regard to appendiceal complications and dysmenorrhea has not been commonly referred to. I am satisfied that there are a number of sterile women whose uteri have been curetted, and who have failed to conceive, who have tubal occlusions from a previous appendicitis, particularly the pelvic variety in early life. Their childhood is responsible largely for this. I am watching at least half a dozen young women now that I saw many years ago. One of them was too ill, we thought, to be put on

the operating table. The attending physician and I were of the opinion that she would die on the table. We dreaded to leave the house, because we had known the father and had grown up together. The attending physician and I agreed that it would take but a feather to depress the beam, and therefore we thought we would give her the only chance she had to save her life. She made a slow recovery. After this she married.

Dr. J. Henry Carstens, Detroit.—This subject is too vast to be discussed in five minutes. It is a complicated subject. I find in my practice two different conditions: First, a dysmenorrhea that will disappear in a good many cases after the removal of the cause. For instance, after these young women get married and bear children, they have no more trouble from painful menstruation. I find another class of cases, in which the dysmenorrhea is not a symptom, but a serious state. A distinction should be made between the two cases. Where the trouble is in the uterus, to which I have repeatedly called attention, the use of a stem pessary is a good thing to remove the hypertrophied condition of the mucous membrane, and in those cases where the dysmenorrhea is due to an undeveloped uterus, you can bring about its further development, and you will obtain remarkably good results in such cases that have resisted all other forms of treatment. Furthermore, we have another class of cases, which Dr. Price has referred to, where they have had some pelvic inflammation. This pelvic inflammation may have been the result of some tubal infection. It may have been the result of some tubercular condition, or the result of an inflammatory condition of the appendix. There may be extensive adhesions of the abdominal viscera to the uterus or tubes and bladder, so that everything is mixed up in one solid mass, as it were, of adhesions. Such cases are difficult to diagnosticate. In these cases on examination we will find that the uterus is about the normal size, and in in proper position. We can find the ovaries, and there seems to be nothing the matter with them, yet these patients suffer the pangs of hell every month for two or three days. Now, what are we going to do? Some of them come to us without much pain, but they are sterile. They want something done. We examine the uterus, find it is normal in size, the os is open, the canal is patulous, and there is no trouble with it apparently. We know there is some mechanical or organic trouble with the tubes or ovaries, etc., if it is not the husband's fault. In these extreme cases I hold that we are justified in making an abdominal section for diagnostic and curative purposes, and in many of them, when the abdomen has been opened, we will nearly always find sufficient trouble to account for the distress, and, as a rule, we will have no difficulty in removing the cause of the trouble. Sometimes we can make the exploratory operation *per vaginam.*

Dr. Hugo O. Pantzer, Indianapolis.—I am delighted with the emphasis put on the hygienic treatment of these cases of dysmenorrhea. My efforts have been fruitful in dealing with

one class of cases emphasized by the essayist, exemplifying the effect of hygiene, as, for instance, I recall the cases of young girls who were sent to mountainous regions for a short sojourn, where the change in their manner of living, climbing mountains, and inhaling outdoor atmosphere brought about relief from this affliction for months after their return to a life that is so faulty of hygiene as city life commonly is made to be.

DR. SELLMAN (closing the discussion).—I am very much obliged to the gentlemen for discussing my paper so freely. The title of my paper was "Some of the Causes of Painful Menstruation in Young Unmarried Women." I did not refer to old maids, who have these contractions, and in whom there is opportunity for development of abnormal growths in the pelvis and in whom inflammatory conditions are present. We all recognize an occluded condition of the tube as a cause of sterility and of painful menstruation, but I did not want to bring that phase of the subject up. The points I brought up, however, are not so well recognized and understood.

In regard to the presence of appendicitis as a cause of painful menstruation, I fail to recognize the connection.

The statement of Dr. Price with reference to Virginia girls marrying and bearing children thereafter reminds me that we have a lot of such girls in the same condition, and it is no wonder they are prolific. If one will question these women, he will find that they have not suffered from dysmenorrhea before marriage. The fact of a woman suffering from dysemenorrhea will prevent the occurrence of pregnancy due to the pathologic condition existing, or to some condition that is present in the endometrium, whereby the natural conditions do not take place and the functions are not carried on properly.

THE MENSTRUAL FUNCTION; ITS INFLUENCE UPON CHRONIC INFLAMMATORY CONDITIONS OF THE APPENDIX.

BY

FRANCIS REDER, M.D.,

St Louis.

WHY should the menstrual function provoke an attack of appendicitis? Upon what grounds can it be made reasonably clear that the menstrual function is the exciting cause? The menstrual function can only provoke an acute attack in an appendix that is chronically diseased. The menstrual function must be considered as a habitual functional hyperemia, and as such must be looked upon as the causative factor.

After a somewhat painstaking consideration of the cases coming under my observation, I can state that only in the severest forms of adnexal disease can the inflammatory condition communicate itself to the appendix and cause the primary acute attack. It is in the chronic form of appendicitis, be it a catarrhal or an interstitially diseased appendix, where a pelvic hyperemia can arouse the dormancy of a smouldering appendix and provoke the clinical manifestations of an acute attack. That such a bacterial activity may incite an attack, pathologic conditions must be favored by the anatomic relationship of the right iliac fossa and the true pelvis. For instance, an appendix, with adhesions, dipping over the pelvic brim, with its end resting somewhere in the true pelvis, would be an example where the organ might easily share with the hyperemia of the pelvic viscera. Even if no pathologic lesions, such as adhesions, existed, the anatomy of the right iliac region, and in particular the structures of Clado's ligament, would give sufficient convincing evidence of how an active pelvic hyperemia could involve the appendix.

Why a smouldering appendix should show activity one, two, or three days before menstruation, and remain quiescent at other times, has been to me an especially difficult matter to reason out satisfactorily. I have, however, come to the conclusion that such an appendix can show activity independently of the menstrual

function, provided the proper conditions exist favorable to an attack. I wish to say here that my remarks are directed only to those attacks that have been observed to occur regularly with the menstrual function for periods of from 4 to 18 months. My attention was first called to this menstrual appendicitis, and I beg to ask the indulgence of the fellows of this association for calling it such, when two women came under my care, suffering with an abdominal pain at the time of menstruation. Both had been operated on for ovarian disease, the operation removing the ovaries from both women. I was informed by them that for two and five months, respectively, they felt improved after the operation, but that now the pain had returned as bad as ever.

The history is of interest, but I will give only the more salient points. Mrs. M., age 32, married, four children, two miscarriages. Housewife and in good health. Typhoid fever at age of 16; always accustomed to hard work. Last miscarriage three years ago at two months. After that her periods were quite painful and profuse, but regular. About a year after the last miscarriage the pain at the time of her menstruation was of such a severe nature that she consulted a physician. As to the character of pain, the patient states that it was constant and cutting, changing but little in its severity. She was unable to locate it at any particular place, as it was diffused over her whole abdomen. Pressure over the lower part of the abdomen caused the pain to increase in severity. The patient was unable to say whether the right or the left side was the more painful.

Her abdomen would become swollen and hard, she would often feel nauseated, and experience chilly sensations, followed by what she thought was fever. Her physician, however, informed her that if she had temperature it was very slight. For almost a year she was under treatment, but was benefited very little. The pain would manifest itself usually a day or two before her menses, and would continue, but less severe, for about two days during the period. During her intermenstrual time this woman was in good health.

Inasmuch as the treatment she had been subjected to for months gave no improvement, operation was advised and accepted. Both ovaries were removed. In three weeks she was able to leave the hospital. When the time arrived for her menses following the operation there was no evidence of any flow; the patient, however, suffered much pelvic discomfort, and a heavy, dull

pain in both iliac regions. This condition lasted almost two months, causing the patient to feel quite sick. Five months after this condition had passed off, she was awakened one night by a severe pain in her abdomen, intense on the right side. With opiates and hot applications her physician was able to give her comfort after the third day.

During the following five months she suffered this pain at a time corresponding to her menstrual function. The pain grew more severe with each attack, and the patient began to suffer physically. I saw her in the last attack. The condition offered no difficulties as to diagnosis. An interval operation was performed, and a club-shaped appendix, its tip adherent and dipping into the true pelvis, was removed. The patient made a good recovery, and has been free from any further attacks of pain in her abdomen.

About seven months later I saw a second and similar case. Mrs. G., age 38 years, married, five children, no miscarriages, health always good excepting a mild form of malarial fever during spring and fall, but always able to do her housework. Her menstrual function was regular, but never free from pain. Suffered much discomfort from abdominal distention. The flow took unusually long in starting, causing a sense of pelvic fulness and bearing-down pains. Hot douches, sitz baths, and salines gave much relief. About fourteen months ago this woman was taken with severe cramps in the lower part of her abdomen. These cramps were of an unusually severe nature, and required medical aid for their relief. Nothing unusual was thought of this, it being the time for her period. Furthermore, the day before she had been doing some washing, and from this the inference was made that she had caught cold. The following day, after the cramps had been very severe, the flow started and the patient felt easier, but not free from pain. The pain lasted three days after the flow had established itself.

At the next menstrual function, and for the four periods that followed she suffered very much. Ovarian disease was diagnosticated, and she was informed that only an operation could promise a cure. After suffering severely with two more periods, she submitted to operation. Both ovaries and tubes were removed. The patient made a good operative recovery, but when the time arrived for her menses to appear again she suffered more than at any time before. She had to be relieved with opiates. She was able

to be about, but did not feel well. Although free from distinct abdominal pain, she felt very uncomfortable in her right side.

I saw the patient at the time of her supposed menstrual activity, two months after the operation. She was suffering severely throughout her whole abdomen. There was distention, tenderness, and rigidity, the muscle resistance being more marked on the right side. She was unable to locate the pain. Pressure over the right iliac region was not tolerated, while over left iliac region it was permissible, but was very painful.

Vaginal examination revealed an exceedingly painful spot high up on the right side. On the left side the examination caused pain, but much less than in the right. Temperature, 99.4°; pulse, 90. Diagnosis of chronic appendicitis was made, and operation was advised. After some deliberation on the part of the patient, and after passing through another attack at her regular menstrual time, she consented to operation, which was performed two weeks after the symptoms had abated.

An abnormally long appendix, directed downward and inward toward the pelvis, was removed. It showed evidence of former inflammatory conditions by two constrictions and many firm adhesions. The patient's operative recovery was good. There was, however, a tenderness that remained in the right ileocecal region for several weeks after she was able to leave her bed. The eventual recovery, however, was satisfactory and complete.

From these two cases the inference must be made that in reality no disease of the adnexa existed, or, if so, in a very mild form, and that the pain as experienced by these patients emanated from a diseased appendix. I frankly admit that it is a difficult matter to interpret correctly any clinical picture of a woman who is suffering severe abdominal pains during her menstrual time, especially when she gives a history of painful menstruation. The symptom complex is rather confusing and uncertain. It requires close study of the case to be able to determine whether this pain is caused by diseased adnexa or a diseased appendix, or both. In differentiating between abdominal and pelvic pain the value of a vaginal or a rectal examination must not be underestimated. I wish to state that in the cases coming under my observation, when a diagnosis of appendicitis was made, the most important disclosures were revealed through such examinations. I would hesitate to give a positive diagnosis of appendicitis in such cases unless I could get sufficiently convincing evidence by a vaginal or rectal examination.

Now, upon what grounds can it be made reasonably clear that the menstrual function is the exciting cause? So far I have had under observation nineteen patients, fourteen married and five single, with ages ranging from 20 to 40 years. Their health on an average has been good. They have been able to work, excepting for several days when the menstrual condition compelled them to lie down or take to the bed. Some of these women were anemic, others gave the appearance of perfect health, but all suffered more or less pain at their menstrual times.

In endeavoring to ascertain whether or not some of these women had passed through an acute attack of appendicitis, I found only four that were certain that they had had an attack. I was, however, able to ascertain that all had suffered from a severe attack of indigestion at some time or another, either with a looseness or a constipated condition of the bowel. It is clearly evident how difficult it is to diagnosticate chronic appendicitis when no definite history of an acute attack can be obtained, especially when painful menstrual conditions may readily cause one to overlook an appendiceal complication.

That some patients develop chronic appendicitis insidiously, that is, without a characteristic acute attack, I believe to be quite true; that is, however, a question of general health. I could not convince myself that such was the case in even one patient of the nineteen I have mentioned. I am of the opinion that every one of these women had an acute attack of appendicitis at some time, but that the attack was not recognized. I do not believe that a menstrual hyperemia can provoke an acute attack in a healthy appendix. I do believe, however, that a menstrual hyperemia can incite an acute attack in a diseased appendix.

Why have not these patients suffered any acute attacks at a time when the menstrual function was not in evidence? Equilibration of the metabolic forces is essential to the maintenance of health. These women inform me that they are in good health. and only at the time of their periods do they suffer with this abdominal pain. We must infer from this that there is a sufficient force of the element of health in the body to keep in check the microbic action of a diseased appendix. I assume that upon this principle it may be explained why acute attacks have not occurred in these women during their intermenstrual periods.

It would appear, then, that something of an unusual nature would take place in the economy of these women at the time of

their menstruation. We know that every woman suffers more or less with a systemic depression about that time; that is physiological. I can assign no other cause but this depression, this lowered resistance in the tissues, as a potent factor in inviting an acute attack of appendicitis about the time of menstruation. Through anatomical channels, and often through pathologic tissue changes, the appendix must share in the congested condition of the pelvic viscera. Such an influx of blood to a surrounding appendix is an incentive for bacterial activity.

It could be expected that through the lowered vital resistance of the body the opsonic power of the blood would become reduced, thereby creating a condition favorable to the pathogenic microbes that are either harbored in the stagnant secretions so often found in the lumen of a diseased appendix, or have, through the lymphatic channels, found lodgment in the walls of the organ. If we can convincingly assume that the opsonic power of the blood is diminished at the time of the menstrual function, we could satisfactorily explain how the increased blood supply would act as an exciting medium to the pathogenic bacteria. The leukocytes would be unable to cope with the virulent bacteria, having been rendered powerless to fulfill their function as phagocytes without the help of these opsonins.

Under these conditions, the activity of the pathogenic bacteria would manifest itself as long as there was no increase in the opsonic power. Fortunately the systemic depression incident to menstruation is of short duration, and this accounts for the brevity of the attack. We assume that with the subsidence of the lowered systemic resistance, the opsonic potency of the blood is restored to normal, thus enabling the leukocyte to again become invested with the power to attack and destroy its bacterial enemies.

DISCUSSION.

Dr. W. A. B. Sellman, Baltimore.—I am very glad that Dr. Reder has presented this paper, because it is practically a continuation of my own paper. He has brought up some points in connection with appendicitis and painful menstruation. It is not, however, appendicitis alone that causes the trouble in these patients, but any painful condition in the pelvic tissue can produce dysmenorrhea.

There is one assertion he makes with which I cannot agree,

namely, that women during menstruation experience some peculiar condition, as, for instance, an exaltation, mental depression, or some psychologic condition. I do not believe that is so. Take the women who have enlisted in the Army and Navy of the United States, who dress themselves as men, and you will find that these women do not experience painful menstruation. Some of them dress so much like men that the probabilities are the army officer or surgeon fails to recognize their sex perhaps for years. The male dress they assume and the general surroundings, and the fact that an impression is made on the nervous system, go to show that they carry out this deception, which has the impression of producing painless menstruation.

Dr. Reder in his paper did not say anything in regard to the causes of dysmenorrhea that I brought forward. I did not mention tubal conditions or conditions present in the pelvis, or, for instance, a condition in which we have an increased blood supply in the appendix or in the intestine. All of these things tend to produce dysmenorrhea when present.

Dr. James F. Baldwin, Columbus.—There are one or two points I would like to emphasize. In a number of reported cases operations have been performed and the tubes removed, yet the dysmenorrhea has continued. The surgeon has operated subsequently and found chronic appendicitis. Such a finding emphasizes the point which I have been urging insistently for many years, and have always carried out in my own practice—namely, that in young people especially the appendix ought to be examined in every case in which the abdomen is opened, and if it is pathologic—and nearly all appendices are—it should be removed. Had this examination been made in the cases reported there would have been no subsequent trouble.

I think that most of the dysmenorrhea that we find in young women is a penalty which we are paying for our so-called civilization. We have headaches, we have bad teeth, we have bad digestion, we have gallstones, we have dysmenorrhea; and all these things are very largely penalties which we pay for civilization. I do not say that civilization is pathologic in itself, but certainly our ways of living are so unnatural, using that word in its proper sense, that necessarily I think we must pay these penalties. Therefore, when the physician puts these young women on the best possible hygienic treatment, puts them back to nature as nearly as possible, he relieves them of their dysmenorrhea, as the essayist did in the cases which he reported. It is only in exceptional cases that we need to remove any of the pelvic organs for dysmenorrhea, and yet in some instances we are obliged to do so. In old maids, for instance, who are laboring women, who cannot go to Europe or to the springs, but who are obliged to work, an operation may be absolutely essential, the tubes being removed if diseased, and if necessary the ovaries.

Right here, however, is another point. I do not believe it is fair to remove a young woman's ovaries because she has dysmenorrhea. If we must do something radical to relieve her pain, let us remove the uterus. It has no special function except to procreate, but the ovaries have important functions, and it is an invariable rule with me never to remove the ovaries of a young woman unless it is absolutely necessary. A small piece of the ovary may be left, as that will answer the purpose perfectly. We may remove the tubes, if we wish, or the uterus, but by all means an ovary should be left. In other words, leave her a woman, and not an "it."

In the *Lancet-Clinic* a short time ago there appeared a discussion of the question of sterilizing a woman in connection with Cesarean section, and as I recall it the proposition was made, without protest, that the ovaries should be removed. It seems to me perfectly absurd to remove the ovaries for that purpose in Cesarean section. If they are diseased it is another proposition, but in the majority of cases which I have seen they are healthy. The tubes can be removed in a very few moments and sterilization thus made absolute, but in removing them they should be removed into the horn of the uterus, so that there is no possibility of the lumen being reopened.

Dr. John A. Lyons, Chicago.—I wish to utter a word of warning in connection with Dr. Baldwin's remarks—namely, be sure that you have the husband's consent before you remove everything that is absolutely necessary to afford relief. In a recent hysterectomy which I performed, I incidentally examined the appendix, found it diseased, and removed it, and as a consequence I came very near having a suit for malpractice on my hands for removing this appendix. I neglected to have an understanding before doing the hysterectomy that I could remove anything that was pathologic. So I think it is well for the surgeon to have *carte blanche* to do as he sees fit in these cases before he begins the operation. The husband of this woman whose case I have related was an ignorant man, and besides he probably wanted to get out of paying a fee.

Dr. Ernst Jonas, St. Louis.—This is a timely paper. The author has called our attention to the relation of painful menstruation and trouble with the appendix. We know the intimate relation between the appendix and the infundibulo-pelvic ligament; therefore we can easily understand that when the appendix is diseased, as the essayist has pointed out, the case might manifest very nearly the same symptoms as a genuine case of dysmenorrha. I know an instance of a young woman who had been suffering from painful menstruation for several years. A few months ago when suffering again, as she supposed from the menstruation, she sent for her physician. He prescribed something for the relief of the pain, and the next day he was informed that the patient did not feel any better. He found the

patient with an extreme case of peritonitis, which was diagnosed by him as a result of a perforation of the appendix. To prevent such unfortunate experiences, this paper comes as a proper warning.

DR. RUFUS B. HALL, Cincinnati.—I agree very largely with the essayist that we may and do have the appendix involved in chronic inflammation at the menstrual period. We see cases occasionally where the appendix is involved in adhesions in making an operation to afford relief.

I believe that the dictum enunciated by one of the speakers, that in all abdominal operations, like the two cases referred to, that if the appendix had been examined at the time of the operation for the removal of the ovaries, there would have been sufficient pathology in the appendix to have justified its removal at that time. Therefore, we cannot emphasize too strongly the necessity of examining the appendix in every case where the abdomen is opened. I think it is an injustice to patients to put them to bed for a possible concretion in their appendix, which we see occasionally when we least expect it.

With reference to the article published in the *Lancet-Clinic,* as mentioned by Dr. Baldwin, I want to say that there are many of us who do not stand sponsor for it, nor do I see why we should because it appeared in a local medical journal. While this article was endorsed by several surgeons in Cincinnati, there are others who do not endorse their opinions, I among them. We are not always present at the Academy of Medicine, in order to combat such arguments as were presented in that article. No woman who undergoes Cesarean section should have the ovaries removed in order to make her sterile. That is worse than criminal. There are other methods suggested that are very much better.

DR. REDER (closing the discussion).—In my paper I did not wish to convey the impression that the treatment I advocated depended on the removal of the ovaries. You are familiar with the pathologic condition of diseased ovaries, therefore the conservative measures in operations upon diseased ovaries should be respected. But this was simply a distinct diagnosis that I referred to, and, furthermore, to the pathologic ignorance on the part of the operator. The ovary was thought to be the seat of trouble, and it was taken out. There were different operators; in these cases it was not the same operator in both cases. It has occurred to me, although I did not bring it out in my paper, that the appendices in both cases, at the time the ovaries were removed, were diseased, and should have been removed. I would not urge a patient to have her appendix removed if she suffers a mild attack of appendicitis during her menstrual time; only in those cases where the attack has been severe and frequent would I advise operation. Very few of these cases show a rise of temperature. The temperature is usually about 99°; that slight rise,

however, cannot always be attributed to appendix trouble. We usually have a rise in temperature in menstrual disturbances. As I have previously said, it is only in those cases where the attack has been severe and of frequent occurrence that I would urge the removal of the appendix. By remaining in bed for two or three days, the attack often subsides. I agree with those surgeons, too, that every chronically diseased appendix should not be removed. Of course, there are others who take a different view of this matter, and say that every appendix that is diseased, either microscopically or macroscopically, should be taken out.

LITHOPEDION OR LITHOKELYPHOPEDION, THIRTY-TWO YEARS OLD, SUCCESSFULLY REMOVED FROM A WOMAN SIXTY-SEVEN YEARS AND SEVEN MONTHS OF AGE.

BY

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THE subject of tubal gestation has been very thoroughly discussed by the members of this Association, but I do not think we have ever seriously considered the remote changes which take place in the products of extrauterine pregnancy, nor have I ever seen a specimen exhibited at our meetings. The natural tendency of all aberrant pregnancies is to spontaneous termination by rupture of their enclosing envelopes, whether the pregnancy be tubal, ovarian, or tuboovarian, and in the great majority of cases this is also true in the interstitial or tubouterine variety; but, in this class, delivery of a full-term baby is possible through the uterus per *vias naturales.*

After rupture has taken place, which is usually the case between the sixth and tenth week, the embryo is absorbed or must be removed by operation, either on account of the hemorrhage and fatal collapse, or the sepsis which results from the disintegration and breaking down of the extravasated blood clot. If, however, a favorable rupture takes place, and the embryo attaches itself to some other structures, it may continue to grow and be delivered at term by abdominal section; or, if left to itself, spurious labor sets in, the fetus dies, the liquor amnii is absorbed, and the gestation product either breaks down and discharges itself piecemeal through the bowels, bladder, rectum, or abdominal wall, or it may remain in its sepulchered nest indefinitely, if protected from air and the gases of the bowels, and undergo calcareous degeneration, mummification, or maceration. Sometimes the calcareous incrustation is confined to the membranes, when the specimen is called a lithokelyphos, and, if the deposit engages both membranes and superficial tissues of the fetus, a lithokelyphopedion; and, if the embryo alone is calcified, a lithopedion.

These different changes depend upon the location of the fetus,

the amount of moisture surrounding it, and its proximity to the bowels. If an adhesion exists between the sac itself and the bowel, and the sac has been thinned out by distention so that gases and bacteria pass freely and easily into the gestation sac, decomposition and abscess formation take place very rapidly; but when the membranes are thick and the product is deposited well down

Fig. 1.—Lithopedion. Cyst intact.

into the broad ligament between its layers, and is thoroughly and strongly walled off, it may remain without producing any very great discomfort, and cases are on record where lithopedia have been removed by postmortem after being carried for fifty years and more.

What is responsible for these strange pathological anomalies and freaks of nature is an interesting study, and what enables one

peritoneal cavity to tolerate and encourage such a foreign body, while another immediately rebels, is not so easily explained. So much has been taught us during these last few years on natural resistance and increased leukocytosis that we fall back to them for a ready explanation to account for this strange behavior of an ectopic ovum, and if we add to them some peculiar combination of salt and calcareous elements in the blood of the mother, we can understand how such stony productions are possible, just as

Fig. 2.—Tumor sawn open, showing fetal parts.

a branch or a tree, falling into a stream of water, under suitable conditions, petrifies and becomes hard and adamantine, while under other combinations it softens, melts, and decays. Sometimes, when the fetus dies, the fluid parts are all absorbed, and the remnant dries up, desiccates, becomes mummified, and looks like a dead rat, or it is converted into what is called adipocere, which is a substance intermediate between fat and wax; it is white

in color and is formed by the union of a fatty acid with ammonia, the fat being supplied by the fat in the tissues of the ovum and vernix caseosa, and the ammonia is generated by decomposition.

In the literature of this subject, and the numerous articles referred to in the index catalogue of the Surgeon-General's office at Washington, many cases are reported, some going back to 1595 by Venetiss, 1597 by Albosius, 1661 by Deusingeus, 1661 by Eyssonius, 1778 by J. G. Waller of Berlin, others more recently by Barnes, Case, Chiari, Sänger, Leopold, Tate, Clarke, Lusk, Bandler, Price, McMurtry and others. In none of these cases was the specimen so perfect as mine and none in whom the specimen was so old and removed by operation. In many it was found post-mortem, and in some suppuration had taken place, the tumor presenting at the abdominal wall or in the vault of the vagina, and after the pus and fluid contents had discharged, the fetus was removed either *en masse* or in pieces by enlarging the original point of rupture.

The history of my case is as follows: Mrs. A., age sixty-seven years and seven months; was married when twenty-two years of age. Periods were regular and without pain or special inconvenience until she was thirty-five years of age, when she missed for the first time in her married life. She sent for the family doctor, who told her she was pregnant. She suffered great pain in the lower part of her abdomen on the left side, and was up and down in bed and on the lounge during the greater part of her early pregnant months; in fact, so great was the pain at times that she did not believe she was in the family way. However, she began to grow larger, and at about the fifth month she felt life, although not strong. Later she made preparations for her confinement—got her baby clothes in order and engaged her nurse.

At the end of the ninth month she was seized with pain, and there appeared a vaginal discharge of blood. The pains were not very severe or tumultuous, but the loss of blood was considerable and continued for some days; clots the size of her hand were often discharged. The doctor was sent for; he examined her, told her she was in labor, and that the baby was living. After many hours of fruitless effort, the pains gradually subsided. She did not remain in bed, but was up and down; the swollen belly got smaller. and in a few weeks she was able to be outdoors, and soon was about the house doing her household duties. She was always conscious of a large swelling in the abdomen, particularly on the left side, but gradually this got smaller, and in a few years she

suffered no inconvenience whatever. She passed through the change of life without incident, and required the services of a doctor but very seldom during her whole married life; she never had any children.

She was sent to me in January, 1907, by Dr. Ballou of Gardenville, and I saw her with him at the German Deaconess's Hospital. For some weeks previous to her entrance to the hospital she had been having a good deal of pain; was growing every day weaker; had lost her appetite, and was swelling in the abdomen. Upon examination a large, hard tumor could be felt, filling the whole of the pelvis, particularly in the left side, and the cervix uteri was pushed up toward the right. A diagnosis was made of a large, hard, fibroid tumor in the left broad ligament, with free fluid in the peritoneal cavity. She was kept under observation for a few days, an attempt being made to improve her physical condition, which was bad. She improved but little, and we decided to operate at once, after the necessary preparations were made.

Upon opening the abdomen through a median incision, a large amount of straw-colored fluid escaped. The adhesions which existed between the omentum and bowels and the tumor were easily broken down, and it was at once evident that we had to deal with a large intraligamentary mass. So the broad ligament was split along its upper portion, the folds of the mesometrium were freely separated, and an attempt was made to deliver the hard, calcareous tumor. The atmospheric resistance was almost insurmountable, but gradually a finger and then another were pushed under the floor of the tumor, the suction being thus overcome when the tumor shelled out with a jump. There was practically no bleeding, so the ragged edges of the ligament were trimmed, a few basting stitches inserted, a small piece of gauze was pushed into the deepest part of the cavity for drainage, and the abdominal wound was quickly closed. She reacted promptly, in a few days was out of danger, and continued to do well throughout her entire convalescence, leaving the hospital five weeks after the operation, and was driven home in a buggy, a distance of about ten miles. She did well for some weeks, but during a sudden cold spell contracted a subacute pleurisy, with effusion, and died in April, 1907. I saw her at her home before she died, and with a hypodermic needle confirmed the diagnosis, and Dr. Ballou subsequently aspirated the chest and removed considerable fluid. She, however, slowly grew weaker and weaker, and died of exhaustion and heart failure a few days later.

The specimen, which is globular in shape, and looks like a bullock's heart, weighs 2 pounds 4¼ ounces. It is surrounded by a dense, hard covering, which is about as thick as thin cardboard, and by letting the specimen drop upon the floor the noise made is as if a solid stone had fallen. After sawing through the outer envelope the fetus is seen firmly bent upon itself; the arms and legs are flattened like bands. The calcified membrane is firmly adherent to the head and spine and back of the legs and arms. The abdomen, chest, side of head, or arms, legs, and fingers —and even finger nails—are in perfect preservation, the sex being determined by the little penis and scrotum. The placenta is present, the cord is thin and glistening in color, and is unusually well preserved. I also append photographs of the tumor, and also one with the outer envelope cut through and the fetus extended, so as to get a good picture.

DISCUSSION.

Dr. O. H. Elbrecht, St. Louis.—I wish to report a case of tubal abortion, with complete detachment of the fetus from the placenta at six months, resulting in omental attachment and beginning lithopedion. Patient was admitted to Female Hospital, August 7, 1906; name, C. P.; age, 31; German; occupation, housewife; had three previous labors; two children alive, one dead; no abortions; weight, 117 pounds; size, 5 feet 2 inches; previous general health has been very good up to the past few weeks, when she suffered with cramp-like pains in the abdomen and small of the back. Bowels regular, and eighteen urinalyses made during her stay in the hospital were all negative. Last menstruation, January 26, 1906; date of quickening, June 15; a week ago, that is August 1, patient had done some washing, and in the evening she became sick with cramp-like pains in the back and right side of lower abdomen. The pain came on gradually, but suddenly increased to severe pain, so she sent for a physician, who prescribed and relieved the pain for the time being, but for two days following she had some pain and headache. There was absolutely no bleeding from the vagina during the attack. Since that time she has felt no fetal movements, and at present is somewhat weak and tired, and has some pain in the small of her back. Temperature, 98°; pulse, 96; respiration, 22. Accelerated pulse rate was thought to be due to excitement incident to leaving her children and coming to the hospital. No evidence of syphilis or rickets; chest normal, bacteriological examination of vaginal secretions for gonococci by Gram were negative.

Pelvic measurements: Interspinal, 26 cm.; intercristal, 29 cm.; bitrochanteric, 31 cm.; external conjugate, 20 cm.

The abdomen was ovoil, and its greatest circumference was 79½ cm. The abdominal wall was of such thickness and tension that palpation was difficult, hence the exact height of the fundus was not determined, fetal parts could not be outlined, and no fetal heart sounds were audible on auscultation.

On vaginoabdominal and rectoabdominal palpation, cervix was found open sufficiently to admit one finger; the uterus was central, softened and enlarged, and a large, hard mass was found to the right and slightly posterior to it. It was slightly movable, and gave but very little discomfort on pressure.

There being no special indication to operate immediately, for the patient was comfortable, she was kept under close observation.

The several blood examinations made showed as follows:

August 17.—Hemoglobin, 85 per cent. Leucocyte count, 10,-266. Erythrocyte count, 3,876,000.

October 16.—Hemoglobin, 95 per cent. Leukocyte count, 16,-132.

November 16.—Hemoglobin, 100 per cent. Leukocyte count, 10,400.

(Day before operation.)

My purpose in waiting up to this date before operating was to give the fetus a chance to develop to a visible age, if alive, for since she was under constant observation, there was little danger in this, as immediate operation could have been decided upon had she developed any untoward symptoms.

Laparotomy was performed on November 17, 1906, and disclosed the following interesting pathology:

The fetus was partially enveloped by the thoroughly adherent omentum, and was located in the region of the umbilicus, or even slightly above it, and showed no trace of any cordal attachment to the placenta, which was plainly visible in the right tube.

The ostium of the tube was perfectly sealed by the membranes, and contained about one-half ounce of fluid, apparently serum.

The entire placental tissue occupied only the outer third of the tube, which was greatly distended and thickened, and this accommodated the amount of pressure it withstood before aborting, and no protrusion or external evidence of a cord could be found. This proves that the cord must have been stretched or torn off, and subsequently macerated and absorbed, and that after the abortion was complete the tube collapsed on the placenta, its membranes plugging the open end sufficiently to prevent a severe hemorrhage. She undoubtedly had some hemorrhage when the abortion occurred, but there was no trace of it at the time of operation.

Salpingo-oophorectomy was done by cutting the cornu of the tube out of the uterus by an elliptical incision, to insure the entire removal of mucous membrane, and the wound thus made and the broad ligament were sewed with a buttonhole stitch of catgut.

The fetus was detached from the omentum by ligatures, and the appendix, which was retrocecal and held down by adhesions,

was also removed. The patient had an uninteresting convalescence.

The uterus was curetted at a later date to insure removal of decidual membranes, but none were found; evidently they were passed spontaneously and escaped the notice of the patient.

The patient improved greatly in general health while under observation, having gained about twenty pounds in weight during her stay in the hospital.

On close inspection of the fetus, grayish-white spots were noted, superficially on the skull and in various locations, which looked like early calcareous formations, and it is my belief that this would have been more typical had the specimen remained longer. The contour of the head and the contortion of the extremities are also characteristic of lithopedion.

Dr. Ernst Jonas, St. Louis.—I am sure that some of the members of this Association will remember the specimen which I presented for Dr. Tuholske at a meeting of the Southern Surgical and Gynecological Association in 1900, and I am sorry I did not bring that specimen to this meeting. Dr. Morris, Dr. Price and Dr. Hall were present at the time I reported the case. The case is very unique.

At the beginning of the third month the ovum had slipped away from the right tube and had implanted itself, according to the law of gravity, in the region of the liver, at the lowest point of the abdominal cavity, in recumbent position. It changed the liver tissue and peritoneum which covered the kidney to decidual and placental tissues, and was able to keep up nourishment of the child to full term. The child was delivered by Dr. Tuholske at full term. No attempt was made to remove the placenta. Patient died the second day after the operation.

Dr. Joseph Price, Philadelphia.—There is scarcely an operator in this hall who has not met with similar experiences. Probably the specimens were not so old and so full of calcareous degeneration. I remember a large specimen of this nature, with a foot protruding from the sac. I think this specimen is beautifully illustrated and fully reported in our Transactions, with a free discussion of this subject.

Dr. Hayd has failed to call our attention to a historical case in his own city, where a woman in the presence of an old fetus that had undergone calcareous degeneration, bore two or three children. Dr. Mann, of Buffalo, removed the specimen, assisted, if I remember, by Dr. Park. In this case they found it necessary to do extensive surgery. They had to resort to bowel suture and resection, and both of them worked to save time, and the woman made a good recovery.

In my own experience, I removed some years ago a specimen very much larger than the one that has been exhibited. This specimen was as large as a gravid uterus at term. No satisfactory history could be obtained in this case. The woman came

to me with what was diagnosed as an edematous myoma. After making a free incision, I sent a corkscrew into it, elevated it, applied a Koeberle, and cut it away. But in removing the corkscrew the sac was torn open a little, and the feet protruded. That specimen is now in a museum, and if I had not put the corkscrew in the sac, no one would have known but it was a fibroid tumor.

Hutchinson, of London, collected fifty-two cases of the remains of ectopic gestations, and gives the percentages of fifty-two cases of those cases in which the remains came through the bladder and groin, and how they got well by nature's method.

DR. POTTER.—But they were not cases of lithopedion?

DR. PRICE.—Yes, they were. They were as hard as stone. The fetal bones were brought to Leidy, who pronounced the specimens lithopedion. It shows how quickly a scientific and great anatomist can recognize these specimens.

The whole subject of ectopic pregnancy is exceedingly interesting, and probably there is no body of men in the world who have had a more varied experience than the Fellows of this Association. I have had myself three hundred operations for ectopic pregnancy. The last patient I saw in Pottsville was very puzzling in regard to the diagnosis of ectopic pregnancy. Cases I have seen this summer have puzzled me very much, but as one grows older in differential diagnosis, he rarely makes a mistake. I was called to Petersburg to see a woman who was operated on under the mistaken diagnosis of strangulated hernia. There was an obstruction of seven days' duration. The woman had nursed a child for a year; she had had some disturbance in re-establishing the menstrual function. She gave a history of severe, agonizing pain, at which time rupture undoubtedly took place. She had never before experienced trouble of that nature. I asked her whether she had ever had a pain like that before, and she answered that she had not. Upon examination, I found a boggy mass, very much like a pelvic hematocele. I said to the attending physician, "Have you considered the possibility of an ectopic condition in this case?" and he said that he had not. I found the abdomen full of blood. Now, these cases can all be recognized, and had Dr. Hayd seen this woman early in her history she never would have gone so far.

DR. E. GUSTAV ZINKE, Cincinnati.—I think the case reported is one of exceeding interest, and the patient is to be congratulated that nature did so much for her. Medical history is full of cases which did not terminate so fortunately, many of them ulcerating through the bladder, through the rectum, and other places.

In examining the specimen we find that the gestation sac is probably the only structure which has undergone petrification. The fetus itself is not, in reality, a so-called lithopedion, because we still find the structures soft. In order to have a genuine lithopedion everything must be stony in character. But in this fetus this is not the case. One can feel the skeleton plainly through

the skin and muscles of the specimen. This fetus, therefore, does not belong to the lithopedion variety.

DR. HAYD (closing the discussion).—This subject and the cases that Dr. Price alluded to, I am familiar with. I was present when Dr. Mann did his operation. He operated after history of continued suppuration, and found a mass which we all thought was a dermoid cyst. The classical case of Dr. McMurtry, which is reported in our Transactions, also appears in detail in Dr. Reed's book on gynecology.

So far as this specimen is concerned, these cases are divided into or classified somewhat as follows: Sometimes the calcareous incrustation is confined to the membranes, when the specimen is called lithokelyphos; and if the deposit engages both membranes and superficial tissues of the fetus, a lithokelyphopedion; and if the embryo alone is calcified, a lithopedion. Sutton takes exception to that classification. Even in this specimen, perhaps if the interior organs were examined, there would be found a deposition of calcareous matter in them, and although we would not call it a true lithopedion, on account of its not being a solid stony mass, yet it really belongs of that class of extrauterine developments which are called lithopedion, and perhaps here more properly termed a lithokephopedion.

I have a beautiful specimen here that I want to show. It is a very rare thing. It is a case of true cornual pregnancy. Even Dr. Price, with all of his experience, has not had such a case as this. The woman was brought to me by a physician in Buffalo, who had previously curetted the uterus. I examined her, and found a large uterus. There was no tenderness; therefore I did not think of a pus tube. I operated on her for fibroid tumor, and upon removing the mass in the upper portion of the right uterus I found a gestation sac and its embryo.

OPHTHALMIA NEONATORUM; A PATHOLOGIC ANACHRONISM.

BY

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Buffalo.

It is now almost a quarter of a century since Carl S. F. Credé of Leipsic presented to the medical profession in an epoch-making paper, a discovery of such tremendous importance that its value has not been fully realized up to the present day. In the *Archive für Gynecologie* of October, 1883, Credé announced that by allowing a single drop of a two per cent. solution of nitrate of silver to flow from the end of a glass rod one-eighth of an inch in diameter upon the cornea of a new born child he had reduced the infections causing ophthalmia neonatorum in his great obstetrical clinic from 10 per cent. of the total number of births to two-tenths of 1 per cent. The importance of this announcement will be better understood when it is borne in mind that at that time, when many of us were students or young practitioners, the new science of medicine had but just been born. It was only four years before that Neisser had isolated the gonococcus, and I remember very well strangling in a carbolized atmosphere in an endeavor to see Billroth apply the principles of Lister. Your distinguished president—then a young man—had but just written that inspiring little monograph, which, though overshadowed since by his greater work, nevertheless served as an inspiration to thousands of young American surgeons, "How to Treat Wounds To-day," and the whole medical world was awakened and had become keenly alive to the importance of microbial infections.

An additional importance was given to this great discovery by reason of the frightful virulence of the infection which it was found to control. The ugly, deformed, staphylomatous eyeballs, resulting from the corneal ulcerations of this disease, were seen everywhere. With the exception of smallpox, no single infection had begun to compare in the virulence of its results with ophthalmia neonatorum. Fully one-quarter of all of the pupils in the asylums for the blind were victims of this malady, and when, therefore, the statement was made by one of the most careful and

dependable obstetricians in Europe that, by this absurdly simple precautionary measure, the child's chances of escaping the infection were increased fifty times, then obstetricians everywhere began repeating the experiments of Credé, and from enormous numbers upon which to base their statistics obtained singularly uniform results.

From tables published by Kostling of Halle, in 17,767 births with no treatment, 9.2 per cent. developed the ophthalmia of infancy, while in 24,723 births, in which the prophylactic treatment of the 2 per cent. nitrate of silver was employed, the infection developed in 0.65 per cent. In 4,000 births at the Sloan Maternity Hospital in New York during a period of six years, in which Credé's method was employed, not one case of ophthalmia developed. Later, in 1886, Credé reported 1,211 births, with 3 but slightly affected, or 0.25 per cent.

Other microbicides were tested for their prophylactic virtues—carbolic acid, iodoform, bichloride of mercury, the newer silver salts, protargol, argyrol, and even simple lavage with plain water. All had their advocates, and statistics were published galore. Indeed, a distinctive literature has appeared, so popular has the subject become, which if assembled would make large volumes. Meantime, too, scientific medicine had not been quiescent in other directions. We had learned how to drive yellow fever from its noisome haunts. We had hunted the typhoid germ to its polluted source. We knew under what conditions the bacillus of tuberculosis flourished and under which it faded away. Then, of course, in the case of a superficial infection like that which produces ophthalmia neonatorum, the nature and time of entry of which have been perfectly understood for more than two score of years, and which prophylaxis places almost absolutely under control, the disease must be practically wiped out of the land, and its ravages seen no more forever.

Let us see. The city of Buffalo is perhaps one of the most fortunate sections of the United States in the protection which it legally affords the new born child. For fourteen years it has had a law requiring midwives to attain a certain standard of proficiency in their work, this to be determined by a board composed of capable and reputable physicians. There exists also a law that every midwife shall at once report to some physician the existence of a case of ophthalmia neonatorum when it becomes known to her, under penalty of a fine. The Health Commissioner, Dr. Ernest Wende, has the deserved reputation of being one of the

most capable and efficient public servants in this work in the United States.

Some months ago Dr. Wende sent return post cards to each physician engaged in the practice of obstetrics, to each midwife in the city of Buffalo, and to the superintendent of each hospital receiving lying-in cases. On each card was a request that a statement be made as to the number of cases of ophthalmia of the new born that had occurred in the practice of the person receiving the card or in the institution during the previous year; what, if any, prophylactic had been used, and with what result. The total number of births in the city of Buffalo during the previous year had been 8,500. The returns did not include hospitals or other lying-in institutions in which, as Hubbell has shown, the frequency is much greater than in private practice. The total number of cases reported was one hundred and two, and if we add the unreported cases it will undoubtedly show ten times as many infections as should have occurred had adequate prophylaxis been employed.

"But," said the editor of a rather prominent southern journal shortly after the appointment of a committee on ophthalmia neonatorum by the president of the American Medical Association at its meeting at Boston in 1906, "does it not seem strange that legislation should be considered necessary to urge physicians and midwives to do their duty? We question very much that blindness due to ophthalmia will become much reduced by such legislation. The disease is certainly much less dreaded now than formerly, and Credé's method is more generally used; consequently, an additional legislative act seems an unnecessary burden on the statute books."

Is this disease, then, well understood and under control, and is the method of Credé generally and correctly employed? The secretary of your Association, who is president of the New York Board of Medical Examiners, refused recently to allow a medical applicant to qualify because, among other errors of knowledge or judgment, he advised as a prophylactic for ophthalmia neonatorum the 1 per cent. or 2 per cent. solution of nitrate of silver dropped in the eyes every 15 to 30 minutes. An examiner of undoubted ability and broad experience demurred at this ruling, saying that the remedy was right and the dosage was correct—the error was in its too frequent application, asking whether nature did not take care of such cases and whether disaster might be apprehended in consequence.

"I have been astonished," writes Dr. de Schweinitz, "in this comparatively enlightened age to find the appalling practices which go on among the poor in the Italian, negro, and other quarters of the city. It would seem to me that there is not any foolish thing that some equally foolish midwife will not put into the eyes of a new born baby provided there is any irritation. I will not burden this letter," he continues, "by citing instances of the appalling ignorance of certain physicians in regard to the proper method of employing silver under these circumstances, except to quote a case recently seen, where a physician used a 2 per cent. solution of nitrate of silver—a drop in each eye of a new born babe three times a day for three days, when there was not the slightest reason for its use, except a small discharge at the inner angles of the eyes totally free from the presence of gonococci. As a result the baby has a large white scar over one cornea and a smaller one over the other."

But, you urge, the standard of medical knowledge has been raised so much during the last twenty-four years that even if infections do occur, notwithstanding the neglect or mismanagement of a gonococcic or other microbial conjunctivitis in an infant, the resulting blindness or serious injury to the eyes must be an exceedingly rare occurrence, and it can no longer be a prolific cause of blindness. In the New York State School for the Blind children are received between the ages of five and twenty-one years. Many of those newly entering are of kindergarten age. Among those registered during the past four years—which shows how recent had been their affliction—26 per cent. had their blindness assigned by careful examiners to ophthalmia neonatorum, while 39 of the 150 registered, or one-quarter of the whole number, had their eyes, and consequently their lives, offered as a sacrifice to this Moloch of ignorance and neglect.

Philadelphia is certainly one of the most enlightened medical centers in the world. At Overbrook, one of its suburbs, is the school for the blind, concerning which Professor Allen, for many years its superintendent, writes me: "It happens that I have by me the main causes of blindness in percentages of the 536 pupils during my administration—or between 1890 and 1906 inclusive—a period of sixteen years. In this table ophthalmia neonatorum figures 29 per cent. of the whole. These cases were assigned by our own oculist," he writes, "Dr. George C. Harlan, and I think there is no mistake in the compilation of the averages."

Recently Mr. Simeon Snell, in a communication to the British

Medical Association, reported that of 333 inmates of the Sheffield school for the blind, 136, or 42.36 per cent., had been blinded by ophthalmia neonatorum. These startling figures led to the unanimous passage of a resolution, proposed by Mr. Stevenson and seconded by Dr. Karl Grossman, that in the opinion of the section on ophthalmology the time had come for the British Medical Association to take action toward the prevention of ophthalmia neonatorum.

While I am not prepared to admit that our results are quite as bad as these figures would indicate—for in our schools for the blind are only the young, among whom the victims of ophthalmia neonatorum are always much the more numerous—we still must admit with humiliation and chagrin that the lesson which Credé taught has not been adequately learned. We have followed false gods in seeking easier methods, and our asylums are full of needless victims. But are all of these cases of blindness occurring in the schools of recent origin? Is it not possible that these blind children in the schools are the product of earlier negligence, and that more modern methods are now in use?

In the State of New York, as determined by the special commission, there were found to be 6,200 blind persons. Of these 509 were under one year of age, and under four years, including those under one year, were 959 children. In the State of Massachusetts, among 3,306 blind registered, 661, or more than 20 per cent., had become blind before their fifth year. If we exclude ulcerative conditions, due to bad hygiene and insufficient nourishment, which ought to be controllable, and congenital blindness, which in many instances can be avoided by preventing the congenitally blind from mating, we may safely assume that one-half of this number, or 10 per cent. of the whole, have given their eyes as a tribute to ignorance or neglect.

Such statements as these must give us pause. What do they mean? It would seem that while we have been combating more spectacular maladies—bringing our sanitary batteries to bear on typhoid, yellow fever, and tuberculosis—this elusive, if no less vicious malady, has in some degree at least escaped us. It is endemic but sporadic. It occurs only in from one in fifty to one in two hundred cases. The busy general practitioner, chiefly occupied with the better classes of society, may not see a case in years; meanwhile, he forgets its virulence and malignancy, and when his attention is called to the red, swollen, suppurating eyes of the baby—the mother being already convalescent—he thinks that any intelligent physician is capable of treating a conjunctivi-

tis; indeed, he has been told so by the editor of one of our medical journals, and he uses *secundum artem* as he thinks a 2 per cent. solution of silver nitrate every two hours or a 10 per cent solution of argyrol once a day. When, finally, the cornea sloughs, the curtain falls, and the light of those baby eyes is extinguished forever, he honestly believes that the virulence of the attack was such that no skill could have averted disaster. "He done his damndest. Angels could do no more."

But it is not chiefly at us of the medical profession that the accusing finger can with justice be pointed except for our sins of omission for responsibility not sustained. The negligence, the ignorance, the indifference concerning these conditions, find their apotheosis in the midwife. Permit me, if you please, to quote from a careful study of this subject made by a trained nurse, F. Elizabeth Crowell, on the "Midwives of New York," which appeared in *Charities and the Commons* for January 12 of the current year, and which will stand doubtless for the same class, whether they appear in Oakland or Oklahoma. Of one Italian midwife it is written, "her home was of the dirtiest, the condition of her hands was indescribable, her clothing was filthy, and her bag beggared description." As to the midwives' homes, 106 were absolutely filthy, as were the clothing and person of the midwife herself. As for the bags and their equipment from a professional standpoint, by far the greater number would make fit decorations for a chamber of horrors. Rusty scissors, dirty string, a bit of cotton, a few corrosive sublimate tablets, old rags and papers, some ergot and vaseline, a gum catheter wired, were the usual contents.

Please God, these conditions will have been bettered by the recent law passed for Greater New York, putting these women under the control of the Health Department, for there are between nine hundred and one thousand of them (many, indeed, well trained, cleanly and intelligent) who were present during the past year at the confinement of 43,834 mothers in the metropolis—about 42 per cent. of the whole number of births. In the city of Buffalo, with a population of nearly 400,000, at about half of the births a midwife presides. In all probability, a like proportion obtains in every community in which the population is largely foreign. With regard to the prevalence of ophthalmia neonatorum there are no available statistics for New York City. The provision of the sanitary code regarding the reporting of contagious diseases to the Board of Health is practically a dead letter in connection with this particular disease.

What, then, is to be done? The control of the conditions producing this vast amount of unnecessary blindness is entirely possible and practical. Two factors are essential: first, more enlightenment—a broader, more general, popular knowledge of the causes and measures to be employed for its prevention; second, perfectly organized and coordinated effort in securing its control. The first is dependent upon the second. It is to us of the medical profession that the intelligent laity is looking for advice and instruction. Already societies for improving the condition of the blind and the prevention of blindness are asking what they can do to remedy the evil, and they can take no step—they can advance no movement—except as they have the authority and support of those who know what to do and how it should be done. Said that wonderful young woman, Helen Keller, a few days ago at a great meeting at Boston, speaking of blindness due to ophthalmia neonatorum: "The problem of prevention should be dealt with frankly. Physicians should take pains to disseminate knowledge needful for a clear understanding of the causes of blindness. The time for hinting at unpleasant truths is past. Let us insist that the States put into practice every known and approved method of prevention and that physicians and teachers open wide the doors of knowledge for the people to enter in. The facts are not agreeable reading. Often they are revolting. But it is better that our sensibilities should be shocked than that we should be ignorant of facts upon which rest sight, hearing, intelligence, morals, and the life of the children of men. Let us do our best to rend the thick curtain with which society is hiding its eyes from unpleasant but needful truths."

Said Dr. Juan Santos Fernandez, the distinguished Cuban ophthalmologist, and an honorary Fellow of this Association, touching upon this subject: "The important thing is to bring before the public mind, by means of constant propaganda, a knowledge of the danger to a recently born child, who is at all affected as to the eyes, the great harm which a husband affected with gonorrhea, may cause his wife or offspring, and, side by side with these, to call the attention of the family to the facilities which the authorities will furnish them to guard against blindness. This," he continues, "would be worth much more than penalties, and if there were a physician paid by the State (and in every county in the United States may such a health officer be found) to attend to the poor children affected, or to prevent their becoming affected, and this fact were to become known to the poor, they would surely seek his assistance, and he could fulfil his duties."

The campaign of education must be conducted along two distinct lines. As Stephenson has shown in his recent monograph on this subject, "It might be thought that medical practitioners needed no instruction as to the ways of preventing ophthalmia neonatorum, and doubtless the majority do not! There remains, however, the significant fact that all of the babies who subsequently develop ophthalmia have not been delivered by midwives or uninstructed women," and Treacher Collins supplements this by saying: "Sad to relate, cases in which delay in the application of appropriate treatment has resulted in permanent damage are met with, where the mothers have been attended by a duly qualified medical man, and not by an ignorant midwife." It would seem to be essential, then, that exact information be conveyed to the members of the medical profession as to the manner in which the toilet of the infant should be performed—how the eyes should be cared for in order that they may be protected from infection.

Said Dr. W. O. Moore, in the *Medical Record,* nearly a quarter of a century ago, "if the physician would attend to the first bath of the new born and not leave the entire charge to a nurse,—perhaps an ignorant one,—much trouble and suffering might be averted." Schirmer speaks of this first bath as "giftwasser"—poison water—and simply dries the child's face, postponing the bath till the following day. Snell reports an almost absolute freedom from ophthalmia in the Jersop Maternity Hospital, simply by reason of exceeding care given to the toilet of the baby's eyes. "The patients," says Dr. Snell, "are among the poorest; some are inmates of the hospital, but the great majority are confined in their own homes. The midwives have received instructions that immediately the head is born, attention must be directed to the baby's eyes. Then with little pieces of lint moistened in tepid water the eyes are carefully washed, as well as the eyelids and parts adjoining. Subsequently in washing the child, care is taken to guard against reinfection. During the last three years there have been 2,242 labors among the in-patients and out-patients. In the first 200 there were a few cases of purulent ophthalmia, but in the last 2,000, since the method has been systematically adopted, not a single case occurred. Directions were also given to the nurses that if a child's eyes looked red it was to be taken at once to the hospital for a drop of nitrate of silver solution to be dropped into the eye." The plan depends for its efficacy on simple cleansing, and its success seems to be well worthy of note.

If these cases can be improperly handled by trained medical

men, what must be done by midwives? Before these women can be instructed they must be known, registered, and made responsible. It seems quite impracticable to eliminate them entirely, but they must be made to show certain qualifications,—a certain amount of training, of fitness, of cleanliness, and decency. This means an organized health movement for the passage of State laws placing these irregular and limited practitioners under the control of the health authorities. They should be taught by lectures and simply but carefully worded instructions in their own language, how the toilet of the child should be conducted. In a circular issued by the Valentin Haüy Society for the Blind in Paris for distribution to midwives and mothers—and which is by far the best published, advice is given to the mother as to her personal care before and up to the time of the birth of the child, the precautions are detailed that should be taken to prevent ophthalmia, and the necessity is urged in black letter type of immediately seeking medical aid should the eyes of the child become at all inflamed. It cannot be hoped, however, even by the exercise of the greatest care to prevent the infection of every baby's eyes, although, as Stephenson says, with rigid care ophthalmia is brought almost to the vanishing point. The necessity for a prophylactic is emphasized.

Objection has been made to the classic Crèdé method because in a very few instances among the many thousands in which it has been employed excessive reaction has followed. The consensus of opinion seems to be, therefore, among obstetricians and ophthalmologists alike that while Crèdé's method properly employed is entirely safe and most effective in the hands of the trained accoucheur it might, if incorrectly used, give rise to undue irritation and it is advised, therefore, that the 1 per cent. solution of nitrate of silver, which is absolutely free from any danger to the eyes whatever and which does not produce silver catarrh, should in preference be employed by unskilled hands; but whatever prophylactic is used it should be prepared and gratutiously distributed by the health department. It should be enclosed in hermetically sealed and light-proof tubes or ampoules and the filing of the birth certificate which should be invariably required, would give the desired opportunity of placing the prophylactic in the hands of the accoucheur or midwife. The silver solution would then always be ready for use, would be of known strength and purity, of trivial cost and of incalculable value. A physician in Buffalo, whose routine practice was to use the Crèdé solution,

omitted it twice in the course of a year because he did not happen to have a preparation of the silver in his bag. In both of these ophthalmia developed. Had these tubes been available half a dozen of them might be carried at once as the solution would be permanently stable and effective and two children would have escaped a danger which might have cost them their eyes.

The certainty too that the solution is of assured strength and purity when accuracy of dosage is of such great importance, must give added confidence in its use. In one reported case the error of a pharmacist made the preparation 20 per cent. of silver nitrate instead of the 2 per cent. called for, to the consternation of the doctor using it. The ampoules would prevent such errors.

If the midwife is to be held responsible for her neglect to use proper prophylactic measures under penalty of losing her license, as she should be, then she should have the prophylactic put in her hands with fullest directions for its use, that no excuse may exist for omitting it. This measure, which is of first importance, received the unqualified endorsement of Dr. Sidney Stephenson in his admirable monograph on ophthalmia neonatorum, in which he makes it one of the measures recommended for the control of this disease and concerning which he says: "At present in England we do something of the kind with regard to calf lymph and antitoxin. The principle, therefore, already is conceded."

It does not seem practicable to put ophthalmia neonatorum on the list of communicable diseases. Considering the fact that it is so frequently of gonorrheal origin, many physicians feel that to report it, with the name of the parents, would be a breach of professional confidence, but for the health officer to take a semi-annual or annual canvass of the number of cases occurring in the practice of the physicians, midwives, and institutions of the locality, together with a statement of what, if any, prophylactic was used, with the resulting condition of the eyes in each instance, has a double value—namely, in serving to impress upon each one receiving the card the need of prophylaxis; and in obtaining statistics from which important conclusions may be drawn. It affords an opportunity, moreover, of conveying information to accoucheurs—that often may not, and soon would not, be necessary—but, meanwhile, it might be instrumental in saving eyes that would otherwise be lost.

The conclusions, in detail then, which are suggested are:

1. To secure the enactment of laws in each state or Federal territory placing the supervisory control and licensure of mid-

wives with the Boards of Health; requiring that these unqualified practitioners be examined and registered in each county and that they be required to immediately report each case of ophthalmia occurring in their practice under penalty, if found guilty, of forfeiture of their license and a fine.

2. Distribution by health boards of circulars of advice to midwives and mothers giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum.

3. The preparation and distribution by health boards of ampoules or tubes containing the chosen prophylactic. For midwives 1 per cent. solution of nitrate of silver is almost universally recommended by obstetricians and ophthalmologists. For physicians the Crèdé solution should consist of a 2 per cent. solution of chemically pure fused nitrate of silver. If used as directed by Credé, one drop from a glass rod ⅛ of an inch in diameter, it is free from excessive irritation and absolutely safe. To insure purity of the drug and accuracy of dosage the Crèdé solution should be given freely to physicians who make application therefor. This, however, should be merely advisory. The health department should be free to use such prophylactic as it may deem best.

4. Periodic report to Boards of Health by all physicians engaged in obstetrics of the number of cases of ophthalmia neonatorum that has occurred in their practice, whether or not a prophylactic was used—if so, what—together with the result.

5. The accomplishment of these measures by the appointment of committees through the various state and county societies whose cooperation would make concerted action possible.

6. To secure these ends the requested cooperation of the American Association of Obstetricians and Gynecologists, the Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, the American Public Health Association, and such other organizations as may appoint committees on ophthalmia neonatorum.

If this plan of campaign be agreed upon with such modifications as obstetricians, ophthalmologists, and sanitarians may suggest, then a united and coordinated effort should be made to carry it into effect. If we would protect the babies—future citizens of the United States—from the poverty and misery of needless blindness, we must join hands and form a cordon reaching from Maine to Alaska and from the Great Lakes to the Gulf. The machinery is already in existence. It is but to act.

To what nobler work could the splendid organization of the American Medical Association lend itself than in furthering such a cause. Such an organized and concerted movement steadily and effectively at work throughout the length and breadth of the land, would mark a new era in which the sodality of medicine would become the chief factor in a social uplift. It would bind the fraternity together with closer ties in an effort to shield humanity from its own follies and frailties. It would practically abolish ophthalmia as a cause of blindness, thereby saving millions to the commonwealth and inmeasurably increasing the happiness and efficiency of humanity throughout the world.

PREMATURE INTERRUPTION OF PREGNANCY.

BY

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Chicago.

OUR program, as usual, is replete with papers discussing the classic and more scientific medical procedures necessary in the present-day practice of the healing art. This is especially true of those conditions requiring gynecology or surgery for any abnormal complication existing or following in the wake of obstetrical practice. It can truthfully be said that the special branch of obstetrics and gynecology has kept fairly abreast of the rapidly advancing medical times, and the child-bearing woman to-day stands a better chance, no matter what the complications, than she has had heretofore in the world's history. This, indeed, is commendable, and due in a great measure to the magnificent papers prepared at enormous labor, read and discussed with such advanced thought by the members of this and similar organizations, so that the medical practitioner, the midwife and even the pregnant woman who reads should act intelligently; and the physician, if he does not perform the capital operations himself should, at least, know where to find capable assistants or masters of scientific surgical skill.

In this paper it is my desire to emphasize earnestly a few thoughts not only of my own, but of others, having special reference to the practice of criminal abortion. This subject is not by any means new to obstetricians, but what I shall say is merely intended to accentuate a topic that presents a sad side of medical contact with human life.

Let me repeat the words of Dr. J. Ross Snider,[1] at Atlantic City in June of this year, who said: "The position assumed by modern society with reference to the unborn child is a subject which has proved so inviting to sentimentalists that physicians, as a rule, discuss it reluctnatly. But the possible physical effects on our women and our children of a widespread revolt against maternity is a question that medical men, no matter how much against their liking, must consider and answer." Dr. Snider further said: "I know of nothing more nerve-wasting, nothing

more cruel, than the way newly-married girls are beset with older married women, bringing ghosts of child-bed and bugaboos of child-care with which to haunt the bridal-chamber." And later, in analyzing the home, he says: "The surprising and distressing feature is that there is still a large number of marriages in which child rights are entirely ignored, or are not sufficiently considered to keep the family intact." Without entering into a detailed study of the complex causes that have brought about the wreckage of 1,400,000 homes in the United States within the last twenty years, it is seen at once that a home with "frenzied finance" on the one hand, and restless indolence on the other, is encompassed by much that is favorable to a history of unhappiness, for in some of these homes those who should become happy parents are too busy in money-making or in social strife to give either love or heed to a child; no wonder, therefore, that divorce or fetal murder, or both, are rampant everywhere; hence a campaign of education is necessary for the older as well as the younger married woman.

It has been said with considerable show of truth and justice that the laws controlling the conduct of abortion, especially of criminal abortion, should be left to the control or regulation of the medicolegal or medical jurisprudence societies of the several states. A careful study from either a legal, a medical, or a humanitarian point of view will soon convince a student of this subject that the language of our penal statute is so exceedingly vague that nearly all criminal abortionists, if well defended as they usually are by able attorneys, escape Scott-free from nearly all courts of justice in nearly all the States of the Union; for, as is truthfully claimed, in this country the people accused of this crime, are entitled to the greatest benefit in the construction of the language of the clause in our statute covering criminal abortion. It may be because of this fact, and for the further reasons that it is not deemed the particular business or concern of either State, county, or city governments that hundreds if not thousands of murderers are abroad in our land, holding high their heads. Those with careless *sang froid* appease their itching palms with the ill-gotten gain of criminal abortion and with perfect security destroy thousands upon thousands of fetal forms, and with cool indifference send to terrible untimely deaths from puerperal sepsis hundreds upon hundreds of misguided women in the towns and cities of this broad land.

Simply because a penal statute is capable of being wrongfully construed, and may, when ably presented to court and jury, be

the means of setting such a murderer free, or on the other hand be the means of convicting a perfectly innocent party, is no reason why it should not be enforced.

And why should this state of affairs exist? If concerted action be taken the evil may easily be overcome. By displacing the vague, confusing, and verbose language of the present clause in the abortion statute, and adopting the Federal laws, or in the laws of each State an abortion clause, such as that suggested by Wm. W. Smithers, a member of the Medical Jurisprudence Society of Philadelphia, the abortionist would soon be forced out of business. The clause formulated by Smithers is somewhat as follows: "Whosoever shall by any means whatsoever commit, bring about or attempt to commit or bring about an unlawful abortion, or whoever may aid or abet in such abortion or in the bringing about of such an abortion, shall be guilty of a felony." Such a clause, short and so strongly worded, would not be easy of misconstruction. Make these people felons and their punishment is already established, and having a wholesome fear that this punishment will be enforced, they will not be so free in committing these crimes.

That changes of a radical character are needed and should be worked for earnestly by every member of this and all medical societies, is apparent to every one who will give the subject patient thought. To substantiate this, it is only necessary to repeat the sweeping charges made in July last by the Chairman of the Chicago Medical Society Abortion Committee, that more than 50,000 immature and premature children are killed in Chicago annually by these criminal abortion fiends, who are exceedingly hard to trap and to convict. It was also said that a certain non-graduate, decrepit and over eighty-two years old, while languishing in the Cook County jail, boastingly admitted having produced five thousand criminal abortions without having any serious trouble with the police.

I am informed there exists in the city of Chicago a regularly organized union of physicians who do nothing but this kind of work. They have lawyers retained by the year to advise them, and it is almost impossible to secure evidence against any member of this vicious trust. But Chicago, while possibly leading the world in this kind of work, is not alone, for the famous Dr. McLeod case of Boston revealed the fact that one group of five doctors performed more than seven thousand criminal abortions in that fair-famed city, in a single year. Other cities, and even smaller towns, for that matter, have their abortionists.

Shall such a record continue? Thousands of good physicians, and hundreds of thousands of good citizens say *NO*, and appealingly raise the Macedonian cry to all their American friends everywhere and especially to all the honorable physicians and surgeons of our land, who are by far in the majority, to morally assist in annihilating these vipers. In speaking thus, we are not unmindful of the terrible disgrace attached to many pregnancies. Nor are we unmindful of the many kind-hearted, loving women whose family burdens are greater than they can carry; nor of the rich or well-to-do woman who is seeking aid in the production of criminal abortion because of society functions or for other reasons.

Can we not help to stop the murdering onslaught by either appointing a committee, similar to the Chicago Medical Society Committee, which will act for us, or by a resolution that a clause similar to that suggested at the Philadelphia Jurisprudence Society be adopted? We need not all proceed alike, but all may help in their own special manner, some by constantly teaching its horrors; others, by consulting with our legislators, may have our laws improved. But we should not fail to aid in some way such a philanthropy, for the central idea of our Association is to cure. For as students of social economics we can easily observe that the idea behind such criminal organizations is wrong; that that idea, stripped of its essentials, is selfishness, to gain for self all that can be gained. Under such organizations, the men who have the greatest chance are those who are strong, cunning and unscrupulous, and he who has all three of these in greatest measure can take most for himself. So long as the world and its people are at the mercy of such organizations; so long as selfish interests are the dominant ideals; just so long will crime and vice remain unchecked. Therefore, let us destroy the criminal abortionists; let us see to it that they are prosecuted and that neither small fines nor graft shall encourage the defendant to violations of the criminal law by esteeming their small penalty to be in the nature of a license to murder.

In America, we confine the definition of abortion to an interruption of pregnancy during the first three months of gestation, but abortion, by the German and French obstetricians, refers to an interruption of pregnancy before the period of viability, which is variously estimated as occurring any time between the twenty-fourth to the twenty-eighth week of gestation. Natural viability, however, even under favorable circumstances, is unlikely to follow an interrupted gestation earlier than the

twenty-seventh or twenty-eighth week. Bodin has for years claimed that by artificial means he saves thirty per cent. of all cases of premature interruptions occurring during the twenty-fourth week of gestation, and this, I believe, is now done at nearly all modern maternities. Naturally a larger percentage under similar care, is saved during the twenty-fifth week, and increasing each week until term, or, rather, until and including the twenty-eighth week; for if we include to full term, a small reduction in percentage during the thirty-second, thirty-third, and thirty-fourth weeks may be noted, especially where incubation is not thoroughly understood, nor used.

Complete Abortion.—By this term we refer to those cases of pregnancy in which the fetus and its membranes are loosened from its uterine attachments and forced from the cavity of the uterus intact, passing away from the vagina much as would an ordinary blood clot, and often with but very little more pain or general disturbance; therefore, requiring very little, if any, either local or general care or attention other than rest for a short time to aid the involution of the uterus.

Incomplete Abortion.—As the word incomplete implies, this form differs from the foregoing in many ways. Here the fetus alone may suffer death and become severed from the umbilical cord by mechanical interference, either directly or indirectly, or it may possibly die from maternal anemia; it is then discharged, but a retention of all or a part of its membranes may take place, causing a mild, moderate, severe, or even fatal infection, either local or general, with or without hemorrhage, often resulting in chronic pelvic disease, or even in an acute general peritonitis from which death follows; hence, this condition of affairs, unlike complete abortion, demands the most intelligent care and attention throughout the entire period of the disturbance, or, at least, until the uterus is entirely emptied of its contents, and often until that organ has completely involuted, if, indeed, it ever does return to a normal condition, for subinvolution is a common sequel even under the best management.

Concealed Abortion.—Here the embryo perishes but is retained, gradual atrophic changes taking place; the pregnant resilience of the enlarged soft uterus disappears, which now gradually decreases in size, all symptoms of pregnancy gradually passing away, leaving no appreciable ill effects.

Missed Abortion.—In this form the clinical phenoma of a threatened abortion are present, followed by those of a concealed or neglected abortion. The embryo dies, abortive pains occur,

but the ovum remains in the uterus until removed. Neglected abortion resembles quite closely an incomplete abortion, but added thereto are those severe symptoms; first, of pelvic infection, followed very soon by a septic, general infection, and this often by general peritonitis and death.

Inevitable Abortion.—Here the diagnosis of abortion is made positive by discovering the cervix dilated; the ovum, which has become displaced from its attachment usually by severe hemorrhage, is found protruding from the os, or possibly a portion of the membranes may have been passed or the liquor amnii discharged.

Therapeutic induction of abortion, miscarriage, or premature labor is a justifiable procedure only when undertaken in the hope of saving the mother's life and if the fetus be viable, the child's life, but should not be attempted until competent consultation has been had, for frequently women are seen to whom abortion has been advised, who, frail indeed, suffering and vomiting even to the verge of starvation through the entire term of each pregnancy, go successfully to term, give birth to a healthy child, and after labor gain strength almost immediately. Therefore, before abortion is therapeutically induced for such conditions, for contracted pelvis or other malformation, or for threatened blindness of the mother, as was recently advised by Germann, to prevent leukoma, the advice of one or more well-informed obstetricians, if possible, should be obtained. In some instances the advice of the Coroner's Physician or of the Health Commissioner's office may well be added, for with such a strong force of consultants, and with the consent of the parents and of the State, even legitimate destruction of the children, of the feeble-minded, or other hopeless incurables, unstables, or degenerates might while yet unborn be admissible, or at least be considered.

Again, in the matter of female pelvic deformities, occasionally general practitioners determine upon inducing abortion for pelvic contractions, without having a thorough knowledge of the use of the pelvimeter, or, indeed, of taking measurements of any kind; hence of themselves they are incapable of deciding such a momentous question. This naturally accounts for the induction of some abortions, miscarriages, or premature labors, because of so-called contracted pelves, which might easily have gone to term, as has been proven later by still larger-sized children being born to them with but very little trouble. This would account,

men, what must be done by midwives? Before these women can be instructed they must be known, registered, and made responsible. It seems quite impracticable to eliminate them entirely, but they must be made to show certain qualifications,—a certain amount of training, of fitness, of cleanliness, and decency. This means an organized health movement for the passage of State laws placing these irregular and limited practitioners under the control of the health authorities. They should be taught by lectures and simply but carefully worded instructions in their own language, how the toilet of the child should be conducted. In a circular issued by the Valentin Haüy Society for the Blind in Paris for distribution to midwives and mothers—and which is by far the best published, advice is given to the mother as to her personal care before and up to the time of the birth of the child, the precautions are detailed that should be taken to prevent ophthalmia, and the necessity is urged in black letter type of immediately seeking medical aid should the eyes of the child become at all inflamed. It cannot be hoped, however, even by the exercise of the greatest care to prevent the infection of every baby's eyes, although, as Stephenson says, with rigid care ophthalmia is brought almost to the vanishing point. The necessity for a prophylactic is emphasized.

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omitted it twice in the course of a year because he did not happen to have a preparation of the silver in his bag. In both of these ophthalmia developed. Had these tubes been available half a dozen of them might be carried at once as the solution would be permanently stable and effective and two children would have escaped a danger which might have cost them their eyes.

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wives with the Boards of Health; requiring that these unqualified practitioners be examined and registered in each county and that they be required to immediately report each case of ophthalmia occurring in their practice under penalty, if found guilty, of forfeiture of their license and a fine.

2. Distribution by health boards of circulars of advice to midwives and mothers giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum.

3. The preparation and distribution by health boards of ampoules or tubes containing the chosen prophylactic. For midwives 1 per cent. solution of nitrate of silver is almost universally recommended by obstetricians and ophthalmologists. For physicians the Crèdé solution should consist of a 2 per cent. solution of chemically pure fused nitrate of silver. If used as directed by Credé, one drop from a glass rod ⅛ of an inch in diameter, it is free from excessive irritation and absolutely safe. To insure purity of the drug and accuracy of dosage the Crèdé solution should be given freely to physicians who make application therefor. This, however, should be merely advisory. The health department should be free to use such prophylactic as it may deem best.

4. Periodic report to Boards of Health by all physicians engaged in obstetrics of the number of cases of ophthalmia neonatorum that has occurred in their practice, whether or not a prophylactic was used—if so, what—together with the result.

5. The accomplishment of these measures by the appointment of committees through the various state and county societies whose cooperation would make concerted action possible.

6. To secure these ends the requested cooperation of the American Association of Obstetricians and Gynecologists, the Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, the American Public Health Association, and such other organizations as may appoint committees on ophthalmia neonatorum.

If this plan of campaign be agreed upon with such modifications as obstetricians, ophthalmologists, and sanitarians may suggest, then a united and coordinated effort should be made to carry it into effect. If we would protect the babies—future citizens of the United States—from the poverty and misery of needless blindness, we must join hands and form a cordon reaching from Maine to Alaska and from the Great Lakes to the Gulf. The machinery is already in existence. It is but to act.

To what nobler work could the splendid organization of the American Medical Association lend itself than in furthering such a cause. Such an organized and concerted movement steadily and effectively at work throughout the length and breadth of the land, would mark a new era in which the sodality of medicine would become the chief factor in a social uplift. It would bind the fraternity together with closer ties in an effort to shield humanity from its own follies and frailties. It would practically abolish ophthalmia as a cause of blindness, thereby saving millions to the commonwealth and inmeasurably increasing the happiness and efficiency of humanity throughout the world.

most capable and efficient public servants in this work in the United States.

Some months ago Dr. Wende sent return post cards to each physician engaged in the practice of obstetrics, to each midwife in the city of Buffalo, and to the superintendent of each hospital receiving lying-in cases. On each card was a request that a statement be made as to the number of cases of ophthalmia of the new born that had occurred in the practice of the person receiving the card or in the institution during the previous year; what, if any, prophylactic had been used, and with what result. The total number of births in the city of Buffalo during the previous year had been 8,500. The returns did not include hospitals or other lying-in institutions in which, as Hubbell has shown, the frequency is much greater than in private practice. The total number of cases reported was one hundred and two, and if we add the unreported cases it will undoubtedly show ten times as many infections as should have occurred had adequate prophylaxis been employed.

"But," said the editor of a rather prominent southern journal shortly after the appointment of a committee on ophthalmia neonatorum by the president of the American Medical Association at its meeting at Boston in 1906, "does it not seem strange that legislation should be considered necessary to urge physicians and midwives to do their duty? We question very much that blindness due to ophthalmia will become much reduced by such legislation. The disease is certainly much less dreaded now than formerly, and Credé's method is more generally used; consequently, an additional legislative act seems an unnecessary burden on the statute books."

Is this disease, then, well understood and under control, and is the method of Credé generally and correctly employed? The secretary of your Association, who is president of the New York Board of Medical Examiners, refused recently to allow a medical applicant to qualify because, among other errors of knowledge or judgment, he advised as a prophylactic for ophthalmia neonatorum the 1 per cent. or 2 per cent. solution of nitrate of silver dropped in the eyes every 15 to 30 minutes. An examiner of undoubted ability and broad experience demurred at this ruling, saying that the remedy was right and the dosage was correct—the error was in its too frequent application, asking whether nature did not take care of such cases and whether disaster might be apprehended in consequence.

"I have been astonished," writes Dr. de Schweinitz, "in this comparatively enlightened age to find the appalling practices which go on among the poor in the Italian, negro, and other quarters of the city. It would seem to me that there is not any foolish thing that some equally foolish midwife will not put into the eyes of a new born baby provided there is any irritation. I will not burden this letter," he continues, "by citing instances of the appalling ignorance of certain physicians in regard to the proper method of employing silver under these circumstances, except to quote a case recently seen, where a physician used a 2 per cent. solution of nitrate of silver—a drop in each eye of a new born babe three times a day for three days, when there was not the slightest reason for its use, except a small discharge at the inner angles of the eyes totally free from the presence of gonococci. As a result the baby has a large white scar over one cornea and a smaller one over the other."

But, you urge, the standard of medical knowledge has been raised so much during the last twenty-four years that even if infections do occur, notwithstanding the neglect or mismanagement of a gonococcic or other microbial conjunctivitis in an infant, the resulting blindness or serious injury to the eyes must be an exceedingly rare occurrence, and it can no longer be a prolific cause of blindness. In the New York State School for the Blind children are received between the ages of five and twenty-one years. Many of those newly entering are of kindergarten age. Among those registered during the past four years—which shows how recent had been their affliction—26 per cent. had their blindness assigned by careful examiners to ophthalmia neonatorum, while 39 of the 150 registered, or one-quarter of the whole number, had their eyes, and consequently their lives, offered as a sacrifice to this Moloch of ignorance and neglect.

Philadelphia is certainly one of the most enlightened medical centers in the world. At Overbrook, one of its suburbs, is the school for the blind, concerning which Professor Allen, for many years its superintendent, writes me: "It happens that I have by me the main causes of blindness in percentages of the 536 pupils during my administration—or between 1890 and 1906 inclusive—a period of sixteen years. In this table ophthalmia neonatorum figures 29 per cent. of the whole. These cases were assigned by our own oculist," he writes, "Dr. George C. Harlan, and I think there is no mistake in the compilation of the averages."

Recently Mr. Simeon Snell, in a communication to the British

Medical Association, reported that of 333 inmates of the Sheffield school for the blind, 136, or 42.36 per cent., had been blinded by ophthalmia neonatorum. These startling figures led to the unanimous passage of a resolution, proposed by Mr. Stevenson and seconded by Dr. Karl Grossman, that in the opinion of the section on ophthalmology the time had come for the British Medical Association to take action toward the prevention of ophthalmia neonatorum.

While I am not prepared to admit that our results are quite as bad as these figures would indicate—for in our schools for the blind are only the young, among whom the victims of ophthalmia neonatorum are always much the more numerous—we still must admit with humiliation and chagrin that the lesson which Credé taught has not been adequately learned. We have followed false gods in seeking easier methods, and our asylums are full of needless victims. But are all of these cases of blindness occurring in the schools of recent origin? Is it not possible that these blind children in the schools are the product of earlier negligence, and that more modern methods are now in use?

In the State of New York, as determined by the special commission, there were found to be 6,200 blind persons. Of these 509 were under one year of age, and under four years, including those under one year, were 959 children. In the State of Massachusetts, among 3,306 blind registered, 661, or more than 20 per cent., had become blind before their fifth year. If we exclude ulcerative conditions, due to bad hygiene and insufficient nourishment, which ought to be controllable, and congenital blindness, which in many instances can be avoided by preventing the congenitally blind from mating, we may safely assume that one-half of this number, or 10 per cent. of the whole, have given their eyes as a tribute to ignorance or neglect.

Such statements as these must give us pause. What do they mean? It would seem that while we have been combating more spectacular maladies—bringing our sanitary batteries to bear on typhoid, yellow fever, and tuberculosis—this elusive, if no less vicious malady, has in some degree at least escaped us. It is endemic but sporadic. It occurs only in from one in fifty to one in two hundred cases. The busy general practitioner, chiefly occupied with the better classes of society, may not see a case in years; meanwhile, he forgets its virulence and malignancy, and when his attention is called to the red, swollen, suppurating eyes of the baby—the mother being already convalescent—he thinks that any intelligent physician is capable of treating a conjunctivi-

tis; indeed, he has been told so by the editor of one of our medical journals, and he uses *secundum artem* as he thinks a 2 per cent. solution of silver nitrate every two hours or a 10 per cent solution of argyrol once a day. When, finally, the cornea sloughs, the curtain falls, and the light of those baby eyes is extinguished forever, he honestly believes that the virulence of the attack was such that no skill could have averted disaster. "He done his damndest. Angels could do no more."

But it is not chiefly at us of the medical profession that the accusing finger can with justice be pointed except for our sins of omission for responsibility not sustained. The negligence, the ignorance, the indifference concerning these conditions, find their apotheosis in the midwife. Permit me, if you please, to quote from a careful study of this subject made by a trained nurse, F. Elizabeth Crowell, on the "Midwives of New York," which appeared in *Charities and the Commons* for January 12 of the current year, and which will stand doubtless for the same class, whether they appear in Oakland or Oklahoma. Of one Italian midwife it is written, "her home was of the dirtiest, the condition of her hands was indescribable, her clothing was filthy, and her bag beggared description." As to the midwives' homes, 106 were absolutely filthy, as were the clothing and person of the midwife herself. As for the bags and their equipment from a professional standpoint, by far the greater number would make fit decorations for a chamber of horrors. Rusty scissors, dirty string, a bit of cotton, a few corrosive sublimate tablets, old rags and papers, some ergot and vaseline, a gum catheter wired, were the usual contents.

Please God, these conditions will have been bettered by the recent law passed for Greater New York, putting these women under the control of the Health Department, for there are between nine hundred and one thousand of them (many, indeed, well trained, cleanly and intelligent) who were present during the past year at the confinement of 43,834 mothers in the metropolis—about 42 per cent. of the whole number of births. In the city of Buffalo, with a population of nearly 400,000, at about half of the births a midwife presides. In all probability, a like proportion obtains in every community in which the population is largely foreign. With regard to the prevalence of ophthalmia neonatorum there are no available statistics for New York City. The provision of the sanitary code regarding the reporting of contagious diseases to the Board of Health is practically a dead letter in connection with this particular disease.

What, then, is to be done? The control of the conditions producing this vast amount of unnecessary blindness is entirely possible and practical. Two factors are essential: first, more enlightenment—a broader, more general, popular knowledge of the causes and measures to be employed for its prevention; second, perfectly organized and coordinated effort in securing its control. The first is dependent upon the second. It is to us of the medical profession that the intelligent laity is looking for advice and instruction. Already societies for improving the condition of the blind and the prevention of blindness are asking what they can do to remedy the evil, and they can take no step—they can advance no movement—except as they have the authority and support of those who know what to do and how it should be done. Said that wonderful young woman, Helen Keller, a few days ago at a great meeting at Boston, speaking of blindness due to ophthalmia neonatorum: "The problem of prevention should be dealt with frankly. Physicians should take pains to disseminate knowledge needful for a clear understanding of the causes of blindness. The time for hinting at unpleasant truths is past. Let us insist that the States put into practice every known and approved method of prevention and that physicians and teachers open wide the doors of knowledge for the people to enter in. The facts are not agreeable reading. Often they are revolting. But it is better that our sensibilities should be shocked than that we should be ignorant of facts upon which rest sight, hearing, intelligence, morals, and the life of the children of men. Let us do our best to rend the thick curtain with which society is hiding its eyes from unpleasant but needful truths."

Said Dr. Juan Santos Fernandez, the distinguished Cuban ophthalmologist, and an honorary Fellow of this Association, touching upon this subject: "The important thing is to bring before the public mind, by means of constant propaganda, a knowledge of the danger to a recently born child, who is at all affected as to the eyes, the great harm which a husband affected with gonorrhea, may cause his wife or offspring, and, side by side with these, to call the attention of the family to the facilities which the authorities will furnish them to guard against blindness. This," he continues, "would be worth much more than penalties, and if there were a physician paid by the State (and in every county in the United States may such a health officer be found) to attend to the poor children affected, or to prevent their becoming affected, and this fact were to become known to the poor, they would surely seek his assistance, and he could fulfil his duties."

The campaign of education must be conducted along two distinct lines. As Stephenson has shown in his recent monograph on this subject, "It might be thought that medical practitioners needed no instruction as to the ways of preventing ophthalmia neonatorum, and doubtless the majority do not! There remains, however, the significant fact that all of the babies who subsequently develop ophthalmia have not been delivered by midwives or uninstructed women," and Treacher Collins supplements this by saying: "Sad to relate, cases in which delay in the application of appropriate treatment has resulted in permanent damage are met with, where the mothers have been attended by a duly qualified medical man, and not by an ignorant midwife." It would seem to be essential, then, that exact information be conveyed to the members of the medical profession as to the manner in which the toilet of the infant should be performed—how the eyes should be cared for in order that they may be protected from infection.

Said Dr. W. O. Moore, in the *Medical Record,* nearly a quarter of a century ago, "if the physician would attend to the first bath of the new born and not leave the entire charge to a nurse,—perhaps an ignorant one,—much trouble and suffering might be averted." Schirmer speaks of this first bath as "giftwasser"—poison water—and simply dries the child's face, postponing the bath till the following day. Snell reports an almost absolute freedom from ophthalmia in the Jersop Maternity Hospital, simply by reason of exceeding care given to the toilet of the baby's eyes. "The patients," says Dr. Snell, "are among the poorest; some are inmates of the hospital, but the great majority are confined in their own homes. The midwives have received instructions that immediately the head is born, attention must be directed to the baby's eyes. Then with little pieces of lint moistened in tepid water the eyes are carefully washed, as well as the eyelids and parts adjoining. Subsequently in washing the child, care is taken to guard against reinfection. During the last three years there have been 2,242 labors among the in-patients and out-patients. In the first 200 there were a few cases of purulent ophthalmia, but in the last 2,000, since the method has been systematically adopted, not a single case occurred. Directions were also given to the nurses that if a child's eyes looked red it was to be taken at once to the hospital for a drop of nitrate of silver solution to be dropped into the eye." The plan depends for its efficacy on simple cleansing, and its success seems to be well worthy of note.

If these cases can be improperly handled by trained medical

men, what must be done by midwives? Before these women can be instructed they must be known, registered, and made responsible. It seems quite impracticable to eliminate them entirely, but they must be made to show certain qualifications,—a certain amount of training, of fitness, of cleanliness, and decency. This means an organized health movement for the passage of State laws placing these irregular and limited practitioners under the control of the health authorities. They should be taught by lectures and simply but carefully worded instructions in their own language, how the toilet of the child should be conducted. In a circular issued by the Valentin Haüy Society for the Blind in Paris for distribution to midwives and mothers—and which is by far the best published, advice is given to the mother as to her personal care before and up to the time of the birth of the child, the precautions are detailed that should be taken to prevent ophthalmia, and the necessity is urged in black letter type of immediately seeking medical aid should the eyes of the child become at all inflamed. It cannot be hoped, however, even by the exercise of the greatest care to prevent the infection of every baby's eyes, although, as Stephenson says, with rigid care ophthalmia is brought almost to the vanishing point. The necessity for a prophylactic is emphasized.

Objection has been made to the classic Crèdé method because in a very few instances among the many thousands in which it has been employed excessive reaction has followed. The consensus of opinion seems to be, therefore, among obstetricians and ophthalmologists alike that while Crèdé's method properly employed is entirely safe and most effective in the hands of the trained accoucheur it might, if incorrectly used, give rise to undue irritation and it is advised, therefore, that the 1 per cent. solution of nitrate of silver, which is absolutely free from any danger to the eyes whatever and which does not produce silver catarrh, should in preference be employed by unskilled hands; but whatever prophylactic is used it should be prepared and gratutiously distributed by the health department. It should be enclosed in hermetically sealed and light-proof tubes or ampoules and the filing of the birth certificate which should be invariably required, would give the desired opportunity of placing the prophylactic in the hands of the accoucheur or midwife. The silver solution would then always be ready for use, would be of known strength and purity, of trivial cost and of incalculable value. A physician in Buffalo, whose routine practice was to use the Crèdé solution,

omitted it twice in the course of a year because he did not happen to have a preparation of the silver in his bag. In both of these ophthalmia developed. Had these tubes been available half a dozen of them might be carried at once as the solution would be permanently stable and effective and two children would have escaped a danger which might have cost them their eyes.

The certainty too that the solution is of assured strength and purity when accuracy of dosage is of such great importance, must give added confidence in its use. In one reported case the error of a pharmacist made the preparation 20 per cent. of silver nitrate instead of the 2 per cent. called for, to the consternation of the doctor using it. The ampoules would prevent such errors.

If the midwife is to be held responsible for her neglect to use proper prophylactic measures under penalty of losing her license, as she should be, then she should have the prophylactic put in her hands with fullest directions for its use, that no excuse may exist for omitting it. This measure, which is of first importance, received the unqualified endorsement of Dr. Sidney Stephenson in his admirable monograph on ophthalmia neonatorum, in which he makes it one of the measures recommended for the control of this disease and concerning which he says: "At present in England we do something of the kind with regard to calf lymph and antitoxin. The principle, therefore, already is conceded."

It does not seem practicable to put ophthalmia neonatorum on the list of communicable diseases. Considering the fact that it is so frequently of gonorrheal origin, many physicians feel that to report it, with the name of the parents, would be a breach of professional confidence, but for the health officer to take a semi-annual or annual canvass of the number of cases occurring in the practice of the physicians, midwives, and institutions of the locality, together with a statement of what, if any, prophylactic was used, with the resulting condition of the eyes in each instance, has a double value—namely, in serving to impress upon each one receiving the card the need of prophylaxis; and in obtaining statistics from which important conclusions may be drawn. It affords an opportunity, moreover, of conveying information to accoucheurs—that often may not, and soon would not, be necessary—but, meanwhile, it might be instrumental in saving eyes that would otherwise be lost.

The conclusions, in detail then, which are suggested are:

1. To secure the enactment of laws in each state or Federal territory placing the supervisory control and licensure of mid-

wives with the Boards of Health; requiring that these unqualified practitioners be examined and registered in each county and that they be required to immediately report each case of ophthalmia occurring in their practice under penalty, if found guilty, of forfeiture of their license and a fine.

2. Distribution by health boards of circulars of advice to midwives and mothers giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum.

3. The preparation and distribution by health boards of ampoules or tubes containing the chosen prophylactic. For midwives 1 per cent. solution of nitrate of silver is almost universally recommended by obstetricians and ophthalmologists. For physicians the Crèdé solution should consist of a 2 per cent. solution of chemically pure fused nitrate of silver. If used as directed by Credé, one drop from a glass rod ⅛ of an inch in diameter, it is free from excessive irritation and absolutely safe. To insure purity of the drug and accuracy of dosage the Crèdé solution should be given freely to physicians who make application therefor. This, however, should be merely advisory. The health department should be free to use such prophylactic as it may deem best.

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If this plan of campaign be agreed upon with such modifications as obstetricians, ophthalmologists, and sanitarians may suggest, then a united and coordinated effort should be made to carry it into effect. If we would protect the babies—future citizens of the United States—from the poverty and misery of needless blindness, we must join hands and form a cordon reaching from Maine to Alaska and from the Great Lakes to the Gulf. The machinery is already in existence. It is but to act.

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PREMATURE INTERRUPTION OF PREGNANCY.

BY

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Chicago.

OUR program, as usual, is replete with papers discussing the classic and more scientific medical procedures necessary in the present-day practice of the healing art. This is especially true of those conditions requiring gynecology or surgery for any abnormal complication existing or following in the wake of obstetrical practice. It can truthfully be said that the special branch of obstetrics and gynecology has kept fairly abreast of the rapidly advancing medical times, and the child-bearing woman to-day stands a better chance, no matter what the complications, than she has had heretofore in the world's history. This, indeed, is commendable, and due in a great measure to the magnificent papers prepared at enormous labor, read and discussed with such advanced thought by the members of this and similar organizations, so that the medical practitioner, the midwife and even the pregnant woman who reads should act intelligently; and the physician, if he does not perform the capital operations himself should, at least, know where to find capable assistants or masters of scientific surgical skill.

In this paper it is my desire to emphasize earnestly a few thoughts not only of my own, but of others, having special reference to the practice of criminal abortion. This subject is not by any means new to obstetricians, but what I shall say is merely intended to accentuate a topic that presents a sad side of medical contact with human life.

Let me repeat the words of Dr. J. Ross Snider,[1] at Atlantic City in June of this year, who said: "The position assumed by modern society with reference to the unborn child is a subject which has proved so inviting to sentimentalists that physicians, as a rule, discuss it reluctnatly. But the possible physical effects on our women and our children of a widespread revolt against maternity is a question that medical men, no matter how much against their liking, must consider and answer." Dr. Snider further said: "I know of nothing more nerve-wasting, nothing

more cruel, than the way newly-married girls are beset with older married women, bringing ghosts of child-bed and bugaboos of child-care with which to haunt the bridal-chamber." And later, in analyzing the home, he says: "The surprising and distressing feature is that there is still a large number of marriages in which child rights are entirely ignored, or are not sufficiently considered to keep the family intact." Without entering into a detailed study of the complex causes that have brought about the wreckage of 1,400,000 homes in the United States within the last twenty years, it is seen at once that a home with "frenzied finance" on the one hand, and restless indolence on the other, is encompassed by much that is favorable to a history of unhappiness, for in some of these homes those who should become happy parents are too busy in money-making or in social strife to give either love or heed to a child; no wonder, therefore, that divorce or fetal murder, or both, are rampant everywhere; hence a campaign of education is necessary for the older as well as the younger married woman.

It has been said with considerable show of truth and justice that the laws controlling the conduct of abortion, especially of criminal abortion, should be left to the control or regulation of the medicolegal or medical jurisprudence societies of the several states. A careful study from either a legal, a medical, or a humanitarian point of view will soon convince a student of this subject that the language of our penal statute is so exceedingly vague that nearly all criminal abortionists, if well defended as they usually are by able attorneys, escape Scott-free from nearly all courts of justice in nearly all the States of the Union; for, as is truthfully claimed, in this country the people accused of this crime, are entitled to the greatest benefit in the construction of the language of the clause in our statute covering criminal abortion. It may be because of this fact, and for the further reasons that it is not deemed the particular business or concern of either State, county, or city governments that hundreds if not thousands of murderers are abroad in our land, holding high their heads. Those with careless *sang froid* appease their itching palms with the ill-gotten gain of criminal abortion and with perfect security destroy thousands upon thousands of fetal forms, and with cool indifference send to terrible untimely deaths from puerperal sepsis hundreds upon hundreds of misguided women in the towns and cities of this broad land.

Simply because a penal statute is capable of being wrongfully construed, and may, when ably presented to court and jury, be

the means of setting such a murderer free, or on the other hand be the means of convicting a perfectly innocent party, is no reason why it should not be enforced.

And why should this state of affairs exist? If concerted action be taken the evil may easily be overcome. By displacing the vague, confusing, and verbose language of the present clause in the abortion statute, and adopting the Federal laws, or in the laws of each State an abortion clause, such as that suggested by Wm. W. Smithers, a member of the Medical Jurisprudence Society of Philadelphia, the abortionist would soon be forced out of business. The clause formulated by Smithers is somewhat as follows: "Whosoever shall by any means whatsoever commit, bring about or attempt to commit or bring about an unlawful abortion, or whoever may aid or abet in such abortion or in the bringing about of such an abortion, shall be guilty of a felony." Such a clause, short and so strongly worded, would not be easy of misconstruction. Make these people felons and their punishment is already established, and having a wholesome fear that this punishment will be enforced, they will not be so free in committing these crimes.

That changes of a radical character are needed and should be worked for earnestly by every member of this and all medical societies, is apparent to every one who will give the subject patient thought. To substantiate this, it is only necessary to repeat the sweeping charges made in July last by the Chairman of the Chicago Medical Society Abortion Committee, that more than 50,000 immature and premature children are killed in Chicago annually by these criminal abortion fiends, who are exceedingly hard to trap and to convict. It was also said that a certain non-graduate, decrepit and over eighty-two years old, while languishing in the Cook County jail, boastingly admitted having produced five thousand criminal abortions without having any serious trouble with the police.

I am informed there exists in the city of Chicago a regularly organized union of physicians who do nothing but this kind of work. They have lawyers retained by the year to advise them, and it is almost impossible to secure evidence against any member of this vicious trust. But Chicago, while possibly leading the world in this kind of work, is not alone, for the famous Dr. McLeod case of Boston revealed the fact that one group of five doctors performed more than seven thousand criminal abortions in that fair-famed city, in a single year. Other cities, and even smaller towns, for that matter, have their abortionists.

Shall such a record continue? Thousands of good physicians, and hundreds of thousands of good citizens say *NO,* and appealingly raise the Macedonian cry to all their American friends everywhere and especially to all the honorable physicians and surgeons of our land, who are by far in the majority, to morally assist in annihilating these vipers. In speaking thus, we are not unmindful of the terrible disgrace attached to many pregnancies. Nor are we unmindful of the many kind-hearted, loving women whose family burdens are greater than they can carry; nor of the rich or well-to-do woman who is seeking aid in the production of criminal abortion because of society functions or for other reasons.

Can we not help to stop the murdering onslaught by either appointing a committee, similar to the Chicago Medical Society Committee, which will act for us, or by a resolution that a clause similar to that suggested at the Philadelphia Jurisprudence Society be adopted? We need not all proceed alike, but all may help in their own special manner, some by constantly teaching its horrors; others, by consulting with our legislators, may have our laws improved. But we should not fail to aid in some way such a philanthropy, for the central idea of our Association is to cure. For as students of social economics we can easily observe that the idea behind such criminal organizations is wrong; that that idea, stripped of its essentials, is selfishness, to gain for self all that can be gained. Under such organizations, the men who have the greatest chance are those who are strong, cunning and unscrupulous, and he who has all three of these in greatest measure can take most for himself. So long as the world and its people are at the mercy of such organizations; so long as selfish interests are the dominant ideals; just so long will crime and vice remain unchecked. Therefore, let us destroy the criminal abortionists; let us see to it that they are prosecuted and that neither small fines nor graft shall encourage the defendant to violations of the criminal law by esteeming their small penalty to be in the nature of a license to murder.

In America, we confine the definition of abortion to an interruption of pregnancy during the first three months of gestation, but abortion, by the German and French obstetricians, refers to an interruption of pregnancy before the period of viability, which is variously estimated as occurring any time between the twenty-fourth to the twenty-eighth week of gestation. Natural viability, however, even under favorable circumstances, is unlikely to follow an interrupted gestation earlier than the

twenty-seventh or twenty-eighth week. Bodin has for years claimed that by artificial means he saves thirty per cent. of all cases of premature interruptions occurring during the twenty-fourth week of gestation, and this, I believe, is now done at nearly all modern maternities. Naturally a larger percentage under similar care, is saved during the twenty-fifth week, and increasing each week until term, or, rather, until and including the twenty-eighth week; for if we include to full term, a small reduction in percentage during the thirty-second, thirty-third, and thirty-fourth weeks may be noted, especially where incubation is not thoroughly understood, nor used.

Complete Abortion.—By this term we refer to those cases of pregnancy in which the fetus and its membranes are loosened from its uterine attachments and forced from the cavity of the uterus intact, passing away from the vagina much as would an ordinary blood clot, and often with but very little more pain or general disturbance; therefore, requiring very little, if any, either local or general care or attention other than rest for a short time to aid the involution of the uterus.

Incomplete Abortion.—As the word incomplete implies, this form differs from the foregoing in many ways. Here the fetus alone may suffer death and become severed from the umbilical cord by mechanical interference, either directly or indirectly, or it may possibly die from maternal anemia; it is then discharged, but a retention of all or a part of its membranes may take place, causing a mild, moderate, severe, or even fatal infection, either local or general, with or without hemorrhage, often resulting in chronic pelvic disease, or even in an acute general peritonitis from which death follows; hence, this condition of affairs, unlike complete abortion, demands the most intelligent care and attention throughout the entire period of the disturbance, or, at least, until the uterus is entirely emptied of its contents, and often until that organ has completely involuted, if, indeed, it ever does return to a normal condition, for subinvolution is a common sequel even under the best management.

Concealed Abortion.—Here the embryo perishes but is retained, gradual atrophic changes taking place; the pregnant resilience of the enlarged soft uterus disappears, which now gradually decreases in size, all symptoms of pregnancy gradually passing away, leaving no appreciable ill effects.

Missed Abortion.—In this form the clinical phenoma of a threatened abortion are present, followed by those of a concealed or neglected abortion. The embryo dies, abortive pains occur,

but the ovum remains in the uterus until removed. Neglected abortion resembles quite closely an incomplete abortion, but added thereto are those severe symptoms; first, of pelvic infection, followed very soon by a septic, general infection, and this often by general peritonitis and death.

Inevitable Abortion.—Here the diagnosis of abortion is made positive by discovering the cervix dilated; the ovum, which has become displaced from its attachment usually by severe hemorrhage, is found protruding from the os, or possibly a portion of the membranes may have been passed or the liquor amnii discharged.

Therapeutic induction of abortion, miscarriage, or premature labor is a justifiable procedure only when undertaken in the hope of saving the mother's life and if the fetus be viable, the child's life, but should not be attempted until competent consultation has been had, for frequently women are seen to whom abortion has been advised, who, frail indeed, suffering and vomiting even to the verge of starvation through the entire term of each pregnancy, go successfully to term, give birth to a healthy child, and after labor gain strength almost immediately. Therefore, before abortion is therapeutically induced for such conditions, for contracted pelvis or other malformation, or for threatened blindness of the mother, as was recently advised by Germann, to prevent leukoma, the advice of one or more well-informed obstetricians, if possible, should be obtained. In some instances the advice of the Coroner's Physician or of the Health Commissioner's office may well be added, for with such a strong force of consultants, and with the consent of the parents and of the State, even legitimate destruction of the children, of the feeble-minded, or other hopeless incurables, unstables, or degenerates might while yet unborn be admissible, or at least be considered.

Again, in the matter of female pelvic deformities, occasionally general practitioners determine upon inducing abortion for pelvic contractions, without having a thorough knowledge of the use of the pelvimeter, or, indeed, of taking measurements of any kind; hence of themselves they are incapable of deciding such a momentous question. This naturally accounts for the induction of some abortions, miscarriages, or premature labors, because of so-called contracted pelves, which might easily have gone to term, as has been proven later by still larger-sized children being born to them with but very little trouble. This would account,

men, what must be done by midwives? Before these women can be instructed they must be known, registered, and made responsible. It seems quite impracticable to eliminate them entirely, but they must be made to show certain qualifications,—a certain amount of training, of fitness, of cleanliness, and decency. This means an organized health movement for the passage of State laws placing these irregular and limited practitioners under the control of the health authorities. They should be taught by lectures and simply but carefully worded instructions in their own language, how the toilet of the child should be conducted. In a circular issued by the Valentin Haüy Society for the Blind in Paris for distribution to midwives and mothers—and which is by far the best published, advice is given to the mother as to her personal care before and up to the time of the birth of the child, the precautions are detailed that should be taken to prevent ophthalmia, and the necessity is urged in black letter type of immediately seeking medical aid should the eyes of the child become at all inflamed. It cannot be hoped, however, even by the exercise of the greatest care to prevent the infection of every baby's eyes, although, as Stephenson says, with rigid care ophthalmia is brought almost to the vanishing point. The necessity for a prophylactic is emphasized.

Objection has been made to the classic Crèdé method because in a very few instances among the many thousands in which it has been employed excessive reaction has followed. The consensus of opinion seems to be, therefore, among obstetricians and ophthalmologists alike that while Crèdé's method properly employed is entirely safe and most effective in the hands of the trained accoucheur it might, if incorrectly used, give rise to undue irritation and it is advised, therefore, that the 1 per cent. solution of nitrate of silver, which is absolutely free from any danger to the eyes whatever and which does not produce silver catarrh, should in preference be employed by unskilled hands; but whatever prophylactic is used it should be prepared and gratutiously distributed by the health department. It should be enclosed in hermetically sealed and light-proof tubes or ampoules and the filing of the birth certificate which should be invariably required, would give the desired opportunity of placing the prophylactic in the hands of the accoucheur or midwife. The silver solution would then always be ready for use, would be of known strength and purity, of trivial cost and of incalculable value. A physician in Buffalo, whose routine practice was to use the Crèdé solution,

omitted it twice in the course of a year because he did not happen to have a preparation of the silver in his bag. In both of these ophthalmia developed. Had these tubes been available half a dozen of them might be carried at once as the solution would be permanently stable and effective and two children would have escaped a danger which might have cost them their eyes.

The certainty too that the solution is of assured strength and purity when accuracy of dosage is of such great importance, must give added confidence in its use. In one reported case the error of a pharmacist made the preparation 20 per cent. of silver nitrate instead of the 2 per cent. called for, to the consternation of the doctor using it. The ampoules would prevent such errors.

If the midwife is to be held responsible for her neglect to use proper prophylactic measures under penalty of losing her license, as she should be, then she should have the prophylactic put in her hands with fullest directions for its use, that no excuse may exist for omitting it. This measure, which is of first importance, received the unqualified endorsement of Dr. Sidney Stephenson in his admirable monograph on ophthalmia neonatorum, in which he makes it one of the measures recommended for the control of this disease and concerning which he says: "At present in England we do something of the kind with regard to calf lymph and antitoxin. The principle, therefore, already is conceded."

It does not seem practicable to put ophthalmia neonatorum on the list of communicable diseases. Considering the fact that it is so frequently of gonorrheal origin, many physicians feel that to report it, with the name of the parents, would be a breach of professional confidence, but for the health officer to take a semi-annual or annual canvass of the number of cases occurring in the practice of the physicians, midwives, and institutions of the locality, together with a statement of what, if any, prophylactic was used, with the resulting condition of the eyes in each instance, has a double value—namely, in serving to impress upon each one receiving the card the need of prophylaxis; and in obtaining statistics from which important conclusions may be drawn. It affords an opportunity, moreover, of conveying information to accoucheurs—that often may not, and soon would not, be necessary—but, meanwhile, it might be instrumental in saving eyes that would otherwise be lost.

The conclusions, in detail then, which are suggested are:

1. To secure the enactment of laws in each state or Federal territory placing the supervisory control and licensure of mid-

wives with the Boards of Health; requiring that these unqualified practitioners be examined and registered in each county and that they be required to immediately report each case of ophthalmia occurring in their practice under penalty, if found guilty, of forfeiture of their license and a fine.

2. Distribution by health boards of circulars of advice to midwives and mothers giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum.

3. The preparation and distribution by health boards of ampoules or tubes containing the chosen prophylactic. For midwives 1 per cent. solution of nitrate of silver is almost universally recommended by obstetricians and ophthalmologists. For physicians the Crèdé solution should consist of a 2 per cent. solution of chemically pure fused nitrate of silver. If used as directed by Credé, one drop from a glass rod ⅛ of an inch in diameter, it is free from excessive irritation and absolutely safe. To insure purity of the drug and accuracy of dosage the Crèdé solution should be given freely to physicians who make application therefor. This, however, should be merely advisory. The health department should be free to use such prophylactic as it may deem best.

4. Periodic report to Boards of Health by all physicians engaged in obstetrics of the number of cases of ophthalmia neonatorum that has occurred in their practice, whether or not a prophylactic was used—if so, what—together with the result.

5. The accomplishment of these measures by the appointment of committees through the various state and county societies whose cooperation would make concerted action possible.

6. To secure these ends the requested cooperation of the American Association of Obstetricians and Gynecologists, the Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, the American Public Health Association, and such other organizations as may appoint committees on ophthalmia neonatorum.

If this plan of campaign be agreed upon with such modifications as obstetricians, ophthalmologists, and sanitarians may suggest, then a united and coordinated effort should be made to carry it into effect. If we would protect the babies—future citizens of the United States—from the poverty and misery of needless blindness, we must join hands and form a cordon reaching from Maine to Alaska and from the Great Lakes to the Gulf. The machinery is already in existence. It is but to act.

To what nobler work could the splendid organization of the American Medical Association lend itself than in furthering such a cause. Such an organized and concerted movement steadily and effectively at work throughout the length and breadth of the land, would mark a new era in which the sodality of medicine would become the chief factor in a social uplift. It would bind the fraternity together with closer ties in an effort to shield humanity from its own follies and frailties. It would practically abolish ophthalmia as a cause of blindness, thereby saving millions to the commonwealth and inmeasurably increasing the happiness and efficiency of humanity throughout the world.

most capable and efficient public servants in this work in the United States.

Some months ago Dr. Wende sent return post cards to each physician engaged in the practice of obstetrics, to each midwife in the city of Buffalo, and to the superintendent of each hospital receiving lying-in cases. On each card was a request that a statement be made as to the number of cases of ophthalmia of the new born that had occurred in the practice of the person receiving the card or in the institution during the previous year; what, if any, prophylactic had been used, and with what result. The total number of births in the city of Buffalo during the previous year had been 8,500. The returns did not include hospitals or other lying-in institutions in which, as Hubbell has shown, the frequency is much greater than in private practice. The total number of cases reported was one hundred and two, and if we add the unreported cases it will undoubtedly show ten times as many infections as should have occurred had adequate prophylaxis been employed.

"But," said the editor of a rather prominent southern journal shortly after the appointment of a committee on ophthalmia neonatorum by the president of the American Medical Association at its meeting at Boston in 1906, "does it not seem strange that legislation should be considered necessary to urge physicians and midwives to do their duty? We question very much that blindness due to ophthalmia will become much reduced by such legislation. The disease is certainly much less dreaded now than formerly, and Credé's method is more generally used; consequently, an additional legislative act seems an unnecessary burden on the statute books."

Is this disease, then, well understood and under control, and is the method of Credé generally and correctly employed? The secretary of your Association, who is president of the New York Board of Medical Examiners, refused recently to allow a medical applicant to qualify because, among other errors of knowledge or judgment, he advised as a prophylactic for ophthalmia neonatorum the 1 per cent. or 2 per cent. solution of nitrate of silver dropped in the eyes every 15 to 30 minutes. An examiner of undoubted ability and broad experience demurred at this ruling, saying that the remedy was right and the dosage was correct—the error was in its too frequent application, asking whether nature did not take care of such cases and whether disaster might be apprehended in consequence.

otomy will be an almost hopeless procedure in preventing general peritonitis; then it is not the tyro judgment and lack of dexterity but the intelligence and skill of experience, and the cooperation of a nurse imbued with the life-saving desire that is necessary.

The prevention of race suicide is one of the grand objects of American manhood and womanhood, and it will be accomplished by the concerted action of honest American physicians, when the American people acquire that sober thought and steadfastness of purpose necessary to the attainment of all great things.

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DISCUSSION.

DR. WILLIAM H. HUMISTON, Cleveland.—In reference to the management of cases of abortion, I feel that a simple principle should be followed, and that is, in those cases that are brought into the hospital with a history of miscarriage, we must know and decide then and there as to whether the uterine cavity is free from all products of conception, in order to prevent later hemorrhage and sepsis that will surely follow if you treat the case in a so-called conservative manner. I claim that it is almost criminal to let a uterus remain with the products of conception within it, until you are forced to do something that may result seriously to the woman. It is my practice, where the uterus is patulous, and there is still some bleeding, say, twenty-four to thirty-six hours after the supposed contents have come away, to empty the uterus as soon as possible under aseptic precautions, and the sooner this is done the better it is for the patient. In the majority of cases I have no trouble whatsoever, in taking a rather broad, curved dressing forceps and going into the uterus and taking hold of pieces of retained secundines and removing them, following this with a dull curet, going over the uterus, from the fundus down, very thoroughly, and irrigate thoroughly with normal saline solution. I do not pack the uterus. After having done this and putting the patient to bed, there is usually no further trouble. In cases in which we are called rather late, in which there is already an odorous discharge and elevated temperature, I cleanse the uterus thoroughly at once, which usually obviates all future difficulty. Where you have a history of abortion of a week or ten days previously, and there has been a rise of temperature, and the patient looks ill, with the pulse rather

rapid, with slow progress of the temperature upwards, I find in these cases, in the majority of instances, that there is involvement outside of the uterus, and the case presents another aspect. In these cases you can either operate from above or below, according to the indications at the time; but I feel that one should not treat these cases in a so-called conservative manner, but should know, if possible, what is within the uterus at the time he first sees the patient.

Dr. Lyons (closing the discussion).—I really expected to get a little more discussion on this subject. I do not care so much about the instrument that is used in curetting the uterus, whether it be a dull or sharp curet, as I do for a free expression of opinion from the members of this association regarding the question of criminal abortion. Medical men apparently do not like to discuss this subject, and yet there is no class of men who are more competent to do so than the Fellows of this association. I really think we ought to take up this question in some way, if not here and now, at least in the future, because criminal abortion is steadily on the increase, daily, yearly and monthly, and it is very important that something should be done by this and other associations with reference to its control.

The President.—After listening to Dr. Lyons's closing remarks, I should think the proper way would be for a committee to get an expression of opinion on this subject, and have this matter discussed in a formal manner. It would be a better way of doing it on a great subject of this nature. Men rather hesitate about taking up this subject, because it involves so many ramifications of social, physiological, and special interest, and I presume there is not a Fellow of this association who does not agree with the position taken by Dr. Lyons and would have a great deal to say on the subject. In fact, the point is that everyone would have so much to say that he would not know where to begin. In order to have a definite, concise opinion, it would be well to have the matter talked over in advance and brought up on another occasion.

Dr. Lyons.—Until within the last year or so there had not been anything done in regard to this matter. The Chicago Medical Society has a committee that has investigated this matter to some extent. If we could get the matter before different organizations, and then taken up by the parent association, the American Medical Association, it would be a good thing.

TYPHOID PERFORATIONS.

BY

JOSEPH PRICE, M.D.,

Philadelphia.

I HAVE been presenting this subject in the shape of short discussions in county, State and national medical meetings for more than a quarter of a century. This has been done largely with the view of drawing out the opinions of general practitioners and impressing upon them the importance of prompt surgical interference. I have reported from time to time more than fifty operations for this condition, an average of two or three a year. Many members of this important organization have been interested in perforative forms of visceral disease. We profit greatly by free discussion of so important a subject, and welcome every note of surgical triumph over a calamity so fatal as typhoid perforations.

In the discussion of valuable contributions on this subject, too many surgeons admit their inexperience and criticise the clinician's tardiness or the failure of the physician to recognize the true nature of the lesion. It is lamentably true that we get these experiences accidentally, that we get but comparatively few timely opportunities. I have been asked four times while away from home to do work in prominent hospitals—to operate for typhoid perforation—three of the four cases having recovered. The fourth was dead before she could be placed on the table. Here you have a demonstration of the vital importance of early recognition and early intervention. You are all familiar with typhoid fever and typhoid conditions; you are prepared to recognize the lesion early; it is a mistake to wait for desired symptoms; for instance, for the vanishing hepatic zone of dulness.

I regret that Dr. Hugh M. Taylor of Richmond, Virginia, is not here, as he was a pupil of the late Dr. Hunter McGuire, who for more than a quarter of a century recommended surgery for perforations and hemorrhages. Taylor, in a recent paper, says: "It would seem a settled fact that typhoid perforation is in every instance essentially a surgical complication, and equally so, certainly in the incipiency of its existence, a legitimate field for

operative intervention. There is nothing to justify the hope that recovery is possible through any resources other than those essentially surgical." Again: "The specialist in surgery appreciates what surgery can do and has done in the treatment of typhoid perforations. The general practitioner, into whose hands these cases commonly first fall, is not so well informed, and this society should express its convictions with no uncertain sound."

Exceptional instances are claimed of spontaneous recovery. The statistics of such cases are entirely too numerous. No matter how credible and honorable the authority, I have grave fears of a mistake. You may have ulceration and focalized peritonitis, but not perforation. Keep in mind that perforation kills. For very much of the reported mortality diagnosis is at fault. The good practitioner and good nurse should not overlook this accident in a typhoid running a perfectly uniform course. Nearly all the perforations are found within about the first twelve inches of the ileum. Characteristic symptoms of perforation are now well known.

Typhoid, and indeed other perforations, are always followed by peritonitis, local or general. The possibility of its remaining local or circumscribed by adhesions should not be considered if the diagnosis of perforation has been made. Perforation and hemorrhage are the two accidents in such a case that are commonly anticipated. In more than 75 per cent. of the cases recorded general septic peritonitis has been found with escaping bowel contents, gas and feces, foul pus, and free exudate in considerable quantity. Generally the perforations are easily and quickly found near the ileocecal valve, rarely multiple or ragged. Whether of large or small caliber, fine, pure sik is the safest material to suture the openings. We can safely reduce the lumen of the bowel to half its normal caliber in this kind of surgery.

If the margins of the ulcer are ragged they should be trimmed. A resection here is an unjustifiable and dangerous procedure. It is better to anchor the ragged ulcer and disorganized bowel with catgut sutures in the opening between drains, thus forming an artificial anus or fecal fistula, which is a much safer procedure, and is commonly followed by spontaneous closure. If this result does not follow, the fistula can be easily remedied after convalescence. I prefer the wet or wash toilet. I am satisfied my practice has influenced a number of surgeons to use it with results that they could not have secured, no matter what their experience, by the dry toilet. The dictum formulated by McMurtry

is very commonly and successfully followed: "Early section, repair, irrigation, and drainage."

Dr. J. M. T. Finney, in his excellent paper on "Surgical Treatment of Typhoid Ulcer," in discussing the relative merits of irrigation and drainage, says: "The facts stated that in 17 of the 23 cases that terminated in recovery, irrigation of the peritoneal cavity was employed, speaks strongly for the efficacy of this measure. In but eight cases of the entire number was wiping used, two of which terminated in recovery." The irrigation or wash toilet, so long practised, has unquestionably given the best results. It should be a thorough cleansing with sterilized water of the entire surface, both of the visceral and parietal peritoneum. It is my impression that irrigation with hot, normal, salt solutions is harmful because of irritation.

It is difficult to cleanse satisfactorily a dirty peritoneal cavity, and, after making an earnest effort to do so, we place multiple drains or practise the open method, which has given us the best results. The gauze pack, often so recklessly used, is a dangerous procedure, favoring too many acute and chronic obstructions by pressure. Unless the operator understands how to place gauze drains or coffer dams in and about filthy surfaces, he had better fill the peritoneal cavity with hot salt solution and close. More obstructions will follow the use of normal salt solutions than distilled or sterilized water. But sterilized water will not arrest general septic peritonitis as quickly as salt solution. Gauze is a rapid method of drainage, but is open to the objections already named.

After closure of a perforation, with careful toilet and drainage, I have noticed that about all the alarming symptoms vanished, the temperature falling to about normal. So pleasing was the condition of the first two or three patients, I was influenced to counsel that the drains be let alone—simply to change the outside gauze dressings. The drains were allowed to remain as long as six days without a temperature, the thermometer going up immediately upon the removal of the drainage. It is fortunate that the internist recognizes the worthlessness of ice, rest, and opium in perforations and peritonitis. Perforations are commonly overlooked in walking cases of typhoid. This is explained by failure to carefully differentiate or too hastily jumping at a diagnosis of appendicitis.

We find that appendicitis is most common during a typhoid epidemic. Again Taylor sounds the right note when he says: "All cases ought to be operated on; not only those *in extremis,*

but even those that are convalescent and in a better condition. I can hardly conceive of a case in which a surgeon would be justified in declining to operate if the patient is convalescing and in good condition for the operation. I think all cases ought to be operated upon, because, as Gregg Smith says, 'who can tell with absolute certainty that the patient is in a moribund condition, inevitably doomed to die, when there is a bare possibility that life may be saved by operation? It is beyond the power of man to say that a patient is hopelessly doomed because of hemorrhage."

The repeated plea or excuse for not operating is low vitality, weakened condition, extreme emaciation. Successful operations have been done in the midst of low, alarming typhoid and abdominal conditions, general incontinence, muttering delirium. and subsultus. Our triumphs following or for the repair of mutilations are now so numerous and gratifying that the schooled surgeon should fear nothing.

DISCUSSION.

Dr. Robert T. Morris, New York.—The idea of draining the toxins in cases of extreme, profound toxemia, with subsultus, is an epoch-making observation. Dr. Price speaks of it as belonging to a few surgeons. I have kept myself fairly well informed in regard to the literature, and, so far as I know, this idea is absolutely new and epoch-making.

Dr. Herman E. Hayd, Buffalo.—It is so seldom we hear any papers on this subject that I really feel we ought to discuss this one very thoroughly. This is the first time I have ever heard enunciated the proposition that we should establish abdominal drainage in very low cases of typhoid fever in advance of perforation, with subsultus, low muttering delirium, and the usual features or symptoms that we see in a low typhoid condition. Moreover, a man will be stimulated to operate oftener in cases of possible typhoid perforation, because the fear of a mistake in diagnosis will not be so humiliating. Sometimes it is difficult to make a diagnosis, particularly if the patient is in a condition of low muttering delirium. If, however, drainage is going to do good, even in the cases without perforation, the chagrin felt at not finding a perforation will be assuaged by the feeling that the operation was indicated, to drain the peritoneal cavity of its toxins. because we would in that way reduce the toxemia.

Dr. Price makes us feel that it is easy to diagnose typhoid perforation. That is not so. Let me mention an experience I had a few weeks ago. One of the surgeons in our city asked me to

see a patient with him at the German Hospital. This man was in a condition of low muttering delirium; suddenly his temperature and pulse arose, and the surgeon thought there was a typhoid perforation, and in view of the fact that Dr. Frederick had had a perforation of the bowel in a case at the Woman's Hospital get well, every surgeon in Buffalo was ready to operate in cases of typhoid fever perforation. I told Dr. Johnston I did not believe there was a perforation. In the first place, there was no sweating or collapse, which I would expect to indicate perforation. The pulse went up, but the temperature did not go down, and from the general appearance of the patient I could not make up my mind that the delirious condition was associated with typhoid perforation. I refused to operate on the man, and two days afterward he died. Post-mortem examination failed to disclose a perforation. The man simply died of his intense intoxication, or intense toxemia. After listening to Dr. Price's paper, I am sorry that I did not follow his advice, because it might have done good to have drained this man's abdominal cavity, and it might have saved his life. The anxiety of a mistaken diagnosis where there is no perforation will, in a measure, be eliminated by the prospective good that may come from abdominal drainage.

I do not see why we should have more irritation or more danger associated with the use of normal salt solution than ordinary sterile water, because I believe the work that Morris has done in this line has shown that normal salt solution is infinitely less irritating than sterilized water. It was a good thought when Dr. Price suggested to us that in many cases which we regard as instances of appendicitis the condition is nothing more than so-called walking typhoid. If in such cases there should suddenly appear symptoms of perforation, an early operation which would close the perforation might save the life of the patient.

Dr. C. C. Frederick, Buffalo.—I am very glad to have heard Dr. Price make the recommendation of draining severe cases of typhoid fever when there is no perforation. It is a method which appeals to me as having in it the elements of success. In this connection you will doubtless recall the teaching of the late Dr. Pryor, who advocated drainage in cases of puerperal sepsis. Dr. Pryor operated in a great many cases of severe puerperal sepsis by opening Douglas's pouch and packing the pelvis with iodoform gauze, establishing free drainage, and thereby saving his patients. I have done this many times in severe cases of puerperal sepsis, and am firmly convinced that I have saved the lives of patients who otherwise would have died. This is now a uniform practice with me in those cases. If the case is progressing unfavorably for three or four days, or if any symptoms should arise which make me feel fearful of the outcome, I open Douglas's pouch freely and pack the pelvis with a large quantity of iodoform gauze, establishing free drainage, and using such general constitutional treatment as I may deem necessary. I think more patients will live following this treatment than other-

wise. I do not see why we should not resort to similar treatment in bad cases of typhoid fever.

I have had some experience with typhoid perforations, some of the cases being favorable, and some unfavorable. The last patient upon whom I operated was a nurse. She recovered. I saw her soon after the perforation had taken place. I was operating in the morning, about nine o'clock, doing a section, and a nurse came into the operating room and informed me that a sick nurse had been taken with severe pain. I put this nurse on the operating table, opened her abdomen, and found two perforations within thirteen inches of the ileocecal valve, and three typhoid ulcers. I invaginated all of them, washed out the cavity, and drained. She made a good recovery.

She was in poor condition, but I think her recovery was largely due to the fact that she was seen within two hours after the perforations had occurred. I think that is the secret of the whole business—early operation, as in appendicitis.

Dr. John A. Lyons, Chicago.—I want to report a case which I think was undoubtedly one of perforation. I called in Dr. George W. Webster, Chicago, in this case, as I had given up hopes of saving the patient. Dr. Webster advised the use of four per cent. gelatine solution. I administered this solution internally, and freely, and, very much to my surprise, the patient recovered. In this case the members of the family were around the bed, believing that the patient was going to die, but suddenly there was a change for the better. Hemorrhage was rather profuse, so that there was but little question about its being a case of perforation. If I should have such a case in the future, I would not hesitate to drain as Dr. Price advises.

Dr. Charles L. Bonifield, Cincinnati.—This is certainly one of the most interesting subjects that can possibly come before the Association. My experience is limited to two cases, one of which was seen and operated upon at the Samaritan Hospital about two years ago. This patient had an exceedingly severe attack of typhoid, but had been poorly treated, so that I did not think we had a fair chance in her case. She was operated on, and while I do not believe the operation shortened her life, it failed to save her.

The second case came under my observation about a year ago. One of our brilliant internists, who called me in consultation, recognized a perforation had taken place about twelve hours previously, so far as could be ascertained from the symptoms. As soon as he saw the patient, he telephoned for me to come and be prepared to operate. As soon as I got my assistants, a nurse and dressings, I went to the house, which was in one of the suburbs, and proceeded to do a section. The perforation was about the size of a lead pencil. When I lifted up the coil of intestines in which the perforation was located, feces poured out in a large stream, and contaminated the peritoneal cavity. We washed it out as best we could and established free drainage. The patient

improved very much within a few hours, and gradually went on to recovery. There was the complication, however, of a second perforation occurring in the drainage tract a little later. This leaked for possibly a week, and then closed itself, and the patient made a splendid recovery.

I feel very happy over the result, because the operation is comparatively in its infancy. I reported this case to the Academy of Medicine, Cincinnati, and I made the same suggestion that Dr. Price makes this morning in discussing the paper. I said at that time that I believed it would be better to open the abdomen in half a dozen bad cases of typhoid, where there was no perforation, than to fail to open the abdomen when there was one at the proper time, and that I believed that many of these cases would be benefited by the drainage, even if no perforation was found. I was criticised rather vigorously by the internists of Cincinnati, but I am glad to have Dr. Price take the same position that I took at that time.

To my mind, there are two things of very great importance in the treatment of typhoid perforations: first, to recognize the perforation promptly, and get at the patient before he or she, as the case may be, is poisoned by the absorption of the contents of the bowel from the peritoneal cavity. Second, to heed the sermon our worthy President (Dr. Morris) preached to us last night—namely, to be just as quick about this work as we possibly can. A typhoid fever patient who has a perforation is a bad surgical risk, because he has been sick a long time; his vitality is not the best; there has been much work for the phagocytes to do, and if we want to help the patient instead of harm him, we must not keep him long under the anesthetic, and we must not try to be particular about our technic within the abdominal cavity. I agree with Dr. Price that free drainage is indicated.

Dr. William H. Humiston, Cleveland.—I have had no experience in operating for typhoid perforation. Two cases of typhoid perforation have been successfully operated on by general surgeons at St. Vincent's Hospital, Cleveland, in the last two years, and have recovered. I wish, however, to mention a method of taking typhoid patients in a low condition or other patients who are in a low, depressed, septic condition, off the table in a better condition than when they went on, in spite of operation. We must do a short operation, in and out of the peritoneal cavity as quickly as possible, as has been stated by the previous speaker. But in all these cases attended with low vitality we can take them off the table in a better condition than they were put on by submammary injections of normal salt solution, injecting at least a quart under each breast during the operation. I have had patients with a pulse of 160; mucous membranes pale, and temperature high, whom I have treated in this way and avoided a fatal shock. In all such cases I anticipate shock and treat them during operation by the above method.

Dr. E. Gustav Zinke, Cincinnati.—I cannot say very much

from personal experience, inasmuch as I have had but one case of typhoid perforation, and that terminated fatally. The patient was the wife of a physician. There is one point that has not been brought out in this discussion, to which I desire to call your attention. It is not only important to make an early diagnosis and to operate promptly; but of still greater importance it is that a large, free incision should be made. I have witnessed several operations for typhoid perforations in which the operator made but a small incision, in consequence of which he had trouble in finding the perforation.

Dr. Roland E. Skeel, Cleveland.—My experience in typhoid fever perforation has been limited to two cases, both patients having been operated on late, and both died. Accumulated experience goes to show that any method of operating, any method of peritoneal toilet, or any method of drainage, provided early operation is undertaken, may frequently be followed by recovery of the patient. But before the dictum goes out from this Association that the profound toxemic state of typhoid fever can be relieved by surgical interference and drainage of the abdomen in the absence of perforation, I think it is due us to have Dr. Price state on what pathological grounds he bases his views. He has pointed out to us his belief that typhoid toxemia is relieved by drainage, pure and simple, of the abdominal cavity. Accepting as true the modern conception of the pathology of typhoid, and the presence of the typhoid bacillus in the blood, in the spleen, in the kidneys and the liver, and the knowledge that the intestine is only one of all the organs involved, I feel that Dr. Price should explain more fully the basis for his conclusions.

Dr. Albert Vander Veer, Albany.—This very classical paper of Dr. Price will attract considerable attention, and will undoubtedly be read by the middle-aged and younger members of our profession, and, as the previous speaker has just said, I think we ought to have something more from Dr. Price in the presentation of points with reference to drainage in cases of typhoid fever.

This Association probably has done more than any special society in this country during the twenty years of its existence in clearing up lesions of the pelvis, sepsis connected with the pelvis, in clearing up the conditions of the appendix, and in making more clear conditions of the gall-bladder and of the kidney, and we are now advancing in a direction that seems to be very important. I have thought of this point, which was presented so earnestly by Dr. Price in his paper, in the autopsies that I have been able to see, where I have been called in cases of perforation in typhoid fever, and found the patient moribund and dying almost while in the house, and at the autopsy, made within two or three hours afterward, have found in the pelvis of almost all of these cases from one to four ounces of serous fluid saturated with typhoid bacilli. This fluid was septic, and I believe this very effort of opening the abdomen and establishing drainage is a good thing. It is not a mistake, particularly when we recall

the cases that go on without operation. If the case of Dr. Hayd had been operated on it would not have done harm, and might have saved the patient's life by washing out and establishing drainage, as indicated by Dr. Price.

As to the cases that come to us, or are referred to us, with typhoid perforation, I classify the physicians who call me in consultation in these cases under two heads: first, the comparatively middle-aged man, who visits his patient frequently, and who is fortunate enough to have a good, intelligent trained nurse. This is the kind of man I like to have send for me in a case of typhoid perforation. That man will get at his case early enough, so that you can reach the patient before he is moribund, as it were, and everything has been lost. Among that class of cases, I am sure that if we could get at the facts, they would indicate that they are the ones which in the majority of instances recover from operation. The second class is the practitioner who waits for the effect of the opium treatment. That class of practitioner still exists, and such practitioners are inclined to wait for the disappearance of the area of liver dullness to convince them that there is perforation, and that distention is an indication of it. These are the unfortunate cases for which we can do very little. They are the cases that are attended with very great mortality.

While we are progressing, we have not encompassed all that pertains to the surgery of the abdomen, and, among other things, we should assure the general practitioner that surgery, in order to relieve certain desperate cases and complications presented in typhoid fever, must be done early. I do not believe there will be any more valuable paper presented at this meeting than this one, and we should discuss it from the standpoint of our practical experience. I am sure we will all be benefited by the complete, clear, and positive way in which Dr. Price has presented the subject of drainage.

I believe this method of drainage to be the correct one. I have very little to say in the way of endorsement of the use of large masses of gauze in these cases. I believe that, as surgeons, we should strive to get in and get out as soon as we can in these cases, and place drainage tubes so that they will do their work thoroughly.

I want to endorse Dr. Price's reference to the possibility of multiple perforations, and not to sew up the intestine without searching for them. Above all, the surgeon should not attempt a resection at this time. The surgeon should bring the gut up into the incision, examine it as rapidly as possible, get in and out as soon as he can in these cases. The patient, if in a hospital, should be placed on a warm table. Saline infusion should be used, and an effort made to support the patient during an hour or two of great shock, because ten or fifteen minutes will tell the story; it may kill the patient if these methods are delayed, so that we have much to think of as we approach a patient in doing this operation. We have to do these operations at the houses of

patients not infrequently, and that is an unfortunate condition which confronts us.

There is so much in this paper that we ought to study it after this meeting, for it is one which will attract the attention of the profession throughout the United States.

Dr. James F. W. Ross, Toronto.—I think we all agree that in cases of intestinal perforation from typhoid fever, or from other causes, and in perforations of the stomach, and of the appendix, operation at as early a date as possible is the correct procedure.

In listening to the paper of Dr. Price, I did not read between the lines, as some of the other speakers have done; that is, that he recommended, as a matter of routine, that we should operate in cases of typhoid fever and drain the abdominal cavity. I did not gather any such idea from his paper. I understood him to say that in cases in which it had been done, it did not do any harm.

For my own part, I think it is a misfortune to make an incorrect diagnosis and operate on a patient in as low a condition as these typhoid fever patients usually are, with the idea of finding a perforation and also finding that a mistake has been made. Twice last winter that happened in our hospital, and with a fatal result in each case. It would be a great misfortune to have a discussion go out from an association like this to the young practitioners throughout the country, that all cases of typhoid fever in which perforation is suspected should be operated on. It is to be hoped that Dr. Price will clear up this matter in his closing remarks. While I think we should always operate if perforation is present, still we should try and diagnose a perforation, if possible. It is true, occasionally mistakes will be made, but I do not believe that it would be good practice to operate on cases of typhoid fever in the absence of a perforation.

Last year I expressed my views before this Association regarding drainage of the abdominal cavity. The form of drainage I prefer in cases in which I am not sure of my work, in which the tissues are not in a good condition, is the gauze drain, or the Mikulicz pack, and the reason I prefer it is that if oozing takes place afterwards there is a larger area shut off and protected, so that this uncertain area is practically made extraperitoneal. I do not think that is done with the ordinary drainage tube. I do not believe in multiple drains. Dr. Morris mentioned yesterday the experiments of Dawbarn with regard to milk being put into the abdominal cavity. You may open the abdomen, and put in a certain amount of milk, and then try to take it out, but you will find, I think, that there will be some of the milk left. The area of operation or the most dependent part should be drained, if drainage is used. After putting in multiple drains I found that very little fluid came out after twenty-four hours. I believe this matter of drainage has been carried to as great an extent as it should be in the treatment

of cases of general purulent peritonitis and has not given the results expected. I have already given records of cases in which I opened the abdomen, washed out with salt solution, closed the abdomen without drainage, and the patients recovered.

DR. RALEIGH R. HUGGINS, Pittsburg.—With reference to making a diagnosis in these cases, I will say that it is not easily made, but at times an increasing leukocytosis will enable us to make a diagnosis of typhoid perforation where we could not do so otherwise.

I think we are all agreed as to the advisability of rapidity of operation; but if we are going to irrigate the abdominal cavity freely, we certainly should not utilize an unnecessary amount of time. Dr. Morris quoted Dr. Hotchkiss, of New York, last night, saying that in cases of perforation from appendicitis with the presence of pus, he had given up the practice of irrigation, and that he now drains with only one or two cigarette drains. So I believe in perforation in typhoid that irrigation is unnecessary, and that we can save time by making a free incision and placing two or three cigarette drains.

I would like to emphasize in the after-treatment the importance of the Fowler position and the free use of saline solution per rectum, according to Murphy's method.

DR. JAMES EDGAR SADLIER, Poughkeepsie.—The admirable paper of Dr. Price recalls to my mind two cases, one of which occurred about five years ago. This patient was in a very low condition. While she had symptoms of perforation of the bowel, they were not well defined. I operated on her and, following the advice suggested by Dr. Huggins, we began with saline transfusion at the time we commenced the operation. The perforation was found; the area was walled off after the method described by Dr. Price, and the patient, who for weeks was hanging on the verge of death, began to improve from that time and made a perfectly uneventful recovery.

There came under my care and attention during the past winter almost a similar case. The patient was a woman, and in her case there were evidences of a possible perforation, but there was objection to operating, and likewise the fact that we were not fortified by an absolute diagnosis of perforation, prevented and militated against operation. That patient died.

Had I been fortified the past winter with this paper, which we have heard to-day, by Dr. Price, I think I should have operated on the second case, perhaps with as fortunate a result as I had in the first instance.

DR. HUMISTON.—I would like to ask Dr. Sadlier what the condition of the patient was when she left the table as compared with when she went on?

DR. SADLIER.—A great deal better.

DR. RUFUS B. HALL, Cincinnati.—This paper is certainly one which should attract wide attention and, in a measure, revolu-

tionize surgery in typhoid fever. As I understand the suggestion in the paper, it is not to operate on every patient who has typhoid fever, as mentioned by one of the speakers, but the author simply advocated operating on those cases in which there are subsultus and delirium. Let us suppose we have a case with those symptoms, or take the case Dr. Sadlier has just mentioned, in which a diagnosis of perforation is uncertain, and yet the patient is in that desperate condition which has been described by the essayist, if the surgeon is called upon to make a positive diagnosis of perforation before operation he is not going to be able to do it. The man does not live yet who can make a positive diagnosis early in perforation, even when it is present. If, however, he operates on a patient conscientiously in that desperate condition in which few patients have recovered without operation, he may save life. These typhoid fever patients are practically all dead by that time. For sixteen or eighteen years I was engaged in general practice, and during that time I saw a number of cases of typhoid fever each year, and when the disease had advanced to such an extent as has been mentioned practically all of them died. Now and then, if in this condition we advise operation for perforation and make the operation and find the patient has no perforation, we might be censured, but we might save life by so doing in some of these desperate cases. We drain the peritoneal cavity, as Dr. Price has suggested, of three or four ounces of dirty fluid in Douglas's pouch. If we take all precautions that a surgeon should take in such cases, resorting to transfusion of normal saline solution, we do not necessarily end the patient's existence by the section. If perforation is present, we have made the correct operation; if it is not present, we drain the peritoneal cavity. There may be a question mark as to whether or not we have not hurried this patient out of existence; whether we have not taken the last chance for recovery. A few operations in these cases ought to throw some light on the subject. I do not know that I am ready to advocate drainage without a history of perforation in these desperate conditions in typhoid fever; yet from a surgical standpoint I do not see how we would spoil a patient's chance for living; probably we would better it.

Dr. Hugo O. Pantzer, Indianapolis.—A brief allusion to two cases of perforative gangrenous appendicitis, probably of typhoid origin, may not be out of place. One was a high school girl, and the other a boy of twelve. The symptoms which first called attention to these cases were those typical of a virulent type of appendicitis. In the girl's case, the opening of the abdomen disclosed a very large, pale, edematous appendix, with great impairment of circulation of the mesenteriolum, so that there was no bleeding from it. The removal of the appendix, with closure of the abdomen, was followed by an immediate fall in temperature, previously 104-5, to approximately normal, and decline of pulse, previously 130-140, to about 100. The sensorium

became entirely clear. Symptoms typical of typhoid developed in the sequence of which the patient died on the tenth day. The severity of the early symptoms undoubtedly were owing to a localized typhoid appendicitis with impending gangrene. The boy's case at the early stage was similar, and a large, edematous appendix, with an impending necrosis of the mesenteriolum, was found at the operation. The subsequent typhoid was complicated with pneumonia. Recovery was slow. The question naturally arises, after hearing the interesting paper, whether in each case the placing of a large drain would have been helpful to recovery expecting from it what Pryor obtained in cases of septic pelvic peritonitis derived from gauze drainage. It might have had some influence on the typhoid intoxication. The treatment would particularly apply to those cases that are naturally hopeless, as which I would instance the grave and extensive involvement of the mesenteric glands.

Dr. Herman E. Hayd, Buffalo.—There is one question I would like to ask Dr. Price to answer when he closes the discussion, and it is this: He leaves in the gauze from six to eight days. Why? I don't believe that gauze will drain after twenty-four hours. If, however, he leaves the gauze in simply because it is difficult to pull it out, or because he may do harm in pulling it out, then, 'tis well; but if he leaves it in for drainage purposes, I would like to have him explain how it drains.

Where I have removed a large ovarian abscess, or a nasty suppurating mass, I put in a Mikulicz nest at the bottom of the cavity, and then I lightly press into the nest loose gauze. On the morning of the second day I take out the center, which is the loose gauze, and on the fifth day I loosen the nest by lifting it up a little, and on the seventh day I take it out altogether and leave a piece of it simply through the abdominal wall. By this practice I don't run any risks. Dr. Price, I understand, leaves the gauze in for drainage, and says when it is removed the temperature goes up. I simply leave the nest in because I am afraid to remove it until adhesions are formed. Secondly, because I want a drainage for the later products—pus, etc., etc.—which are so often discharged eight and ten days after the primary operation.

Dr. Price (closing the discussion).—Dr. Morris has given us a valuable discussion about the importance of arresting the toxemia. We are seeking toxemia and toxic foci all the time, and when we find them we are usually happy over the results.

It seems to me that the results from surgical interference have been better than anticipated. Dr. Bonifield anticipated me in much of this work; but this work has been exceptionally good throughout the country. At the Johns Hopkins, they saved three patients out of four by operating, after having permitted about thirty previously to die. Prolonged efforts for days were made to make a diagnosis, waiting for the hepatic zone of dulness to appear before they did the first section. I am satisfied

that if they had done the first section as early as they did the other three, the results would have been the same, and they could have saved one hundred per cent. of their cases. We have had six successes out of seven operations reported in this discussion. This is very gratifying. Dr. Sadlier saved his first case, a desperate one. Dr. Bonifield saved one, with a recurrence of perforation on the fifth or sixth day. Had he not placed drains the woman would have died from a second perforation. The family, in all probability, would not have tolerated a second operation even if the surgeon did not have sufficient courage to insist on it.

The question of shock should always be considered, and Dr. Humiston has adopted in all of his surgery the wise preparation of his patient for shock, and for unfavorable conditions following prolonged anesthesia and prolonged operation. I think it is well for all surgeons to anticipate shock, and as bearing on this, last night we discussed short, quick operations. Ether is not contraindicated in operations for typhoid perforation. I look upon ether as a valuable stimulant. We can put a typhoid patient on the table, with a pulse of 140 or 160—in fact, the pulse may scarcely be perceptible, and the nurse may be wrestling with the patient to find the pulse—and if we take the precautions of rapid anesthesia and a short one, there will be very little shock from the incision through non-vital structures, or from the anesthesia, or from the free bite of the hemostats or other possible surgical traumatism, and such patients come off the table with a pulse of 130, in much better condition than they went on. We must minimize these harmful conditions in surgery, and they have all been discussed.

Dr. Hayd made a splendid discussion and opened up precisely the same line of thought that Dr. Morris wanted us to follow—namely, to arrest the toxemia. The seat of the trouble in these cases is in the ileum and Peyer's patches. It is an ascending infection. It is in Peyer's patches that the disease lurks, and the systemic infection, the headache, or other symptom, comes from that source, and heretofore in grave conditions of typhoid all were agreed that such a patient was going to die if not operated on. Even though we may fail to find perforation we can drain the bowel and irrigate, as they do in cases of amebic dysentery. What happens in these cases? As many as twelve orderlies in military hospitals have had the appendix or cecum drained or irrigated, shortly after which they have been relieved of all symptoms of impaction of the bowel. I believe we can obtain precisely similar results in typhoid fever cases.

As to what has been said with reference to salt solution, I am very fond of it. I do not hesitate to say, that salt solution is probably the best thing you can use if you know anything about it for arresting infections and toxic conditions; and yet it is the solution, above all other solutions, we know so little about. But it is more stimulating than others. I believe

we have more cases of postoperative ileus and obstructions from salt solutions than from sterilized or distilled water. But ileus does not trouble us after we have arrested the sepsis. We know how to relieve ileus; we can relieve a kink in the bowel, and the patient will go on and get well. You should not let little things like that trouble you. (Laughter.) I have such a patient in bed now upon whom I operated. The man was nearly dead when I saw him. I opened the abdomen and washed out the left side of the abdominal cavity with soft gauze towels, and then washed out the side of his loin. The bowels were filthy, laden with lymph, and all sorts of lymph cobwebs and muddy fluid. All of these cobwebs should be wiped away wherever we find them in these cases. This man did beautifully for two weeks, but at the end of that time his condition was alarming. He was put on the table again, and I was horrified to find him with ileus, with bowels and peritoneal cavity aseptic, after having made apparently a pretty good recovery. I made the bowels as aseptic as I could with salt solution, and the patient made a nice recovery with drainage. But there was a good deal of irritation from the salt solution. I find that salt solution is a stimulant.

The report made by Dr. Frederick is excellent. There we have ideal surgery in typhoid perforation, with an alarming condition of the patient, and recovery. We have had five recoveries reported here in six efforts to save these patients. That is much better than I expected to get.

I want you to have a clear idea of the accidental way in which I got three of these cases out of four. The fourth patient was not put on the table, nor did the grace of God save her. I did not go to these hospitals, understand, to do the three sections. One patient came from Pittsburg and landed in Norristown before I got there to do other surgical work. The question came up as to whether or not this patient had appendicitis, but it was decided that it was not a case of appendicitis. It was agreed, however, that the man was in a dying condition, and that we ought to find out what was wrong with him. We opened the abdomen and found the condition I have described to you. The same thing occurred in a patient at Coatesville, in a man who had been working in a foundry with symptoms of walking typhoid. He had dysentery and epistaxis. He had an acute agonizing pain, and a double hernia. These symptoms were aggravated by the intense heat in the foundry. His hernia came down a number of times, but he succeeded in reducing it. One physician thought he had reduced the strangulated bowel. I thought not. The symptoms were too severe. Hypodermics were given in this case. The man insisted upon a radical cure of his hernia while he was under anesthesia, and I made the little blunder of opening the hernial sac, the one he had reduced, but fortunately the bowel contents made their appearance in the sac; notwithstanding rupture had taken place two hours before I saw

him, there were evidences of bowel contents in the sac. I went to the median line and opened, passing a gauze rope up the left sac, and allowed it to remain there. I pulled out a foot or so of intestine, and found that he had a regular fistula with eversion of the mucous membrane. The fistula was closed, drainage established, and that man recovered without a ripple, without temperature, without nausea, or eructations, with a flat abdomen. One of the army surgeons reported four cases, and saved three. He recommended in unhealthy conditions, not favorable for suture, bringing the bowel out and making an artificial fistula, thus establishing drainage of the ulcerated zone of the bowel. By anchoring the bowel between gauze sponges with catgut and utilizing the artificial fistula, we thus establish drainage of the bowel as well as the peritoneal cavity. After the toilet, the fistula will close, or you can close it during convalescence. As I have said, this army surgeon saved three patients out of four. You see, therefore, the results have been wonderfully good.

Dr. Ross brought up the importance of drainage, and the character of the drain. I believe in drainage and in sticking to it. Dear old Dr. Keith once said, Where would we be without drainage? and in those days their methods were not as good as ours. I want to make myself clear, if possible, regarding drainage with gauze. If you remove the gauze that is outside, the outside gauze will drain the inside gauze. You should change the outside gauze, therefore, often, and use it abundantly. I do not think there is any more valuable thing that has ever been given to surgery than gauze. There is nothing I value in surgery more than gauze. I value it as much as I do the hemostatic forceps. But I used gauze and gauze drains in the open treatment of wounds some ten years before I heard of Mikulicz. The first case was one of criminal abortion. Two men had been locked up for this criminal abortion, and four physicians had been asked by the coroner's physician to do the post-mortem. He found the woman was still living, and came to me and asked me to take charge of her. I put her on an ironing board, and washed out her abdominal cavity with seven pitchers of water; raised the viscera, put gauze in her pelvis, and she made a nice recovery. She had hypostatic pneumonia, but she got well. Gauze drainage began at that time.

With regard to gauze packs and visceral pressure, you should endeavor to get the viscera out of the way and drain the dirty zone. Do not fill the pelvic or peritoneal cavity with gauze, or indiscriminately pack the gauze around, as you would pack a case, or something of that kind. That is all wrong. The gauze should be put in scientifically. I have used four square sponges, almost as thick as my hand; put in a little cofferdam, carrying the viscera up and away from the dirty zone, and pus foci. In these cases I have put in a gauze mat, or put a piece of disorganized bowel in the gauze mat; have drained the right groin by a

small gauze column, and closed half of my incision. Sometimes I have not found it necessary to introduce even a suture, but have simply used gauze columns. And the so-called Mikulicz gauze treatment, as commonly practised, is not only a mistake, but it is harmful in many instances.

I am glad that there are so many operators who say they can get along without drainage, but am sorry I have not had the opportunity of going to see them and remaining a few days with them, in order to see how they manage their dirty cases. I heard the other day of three deaths in Connecticut in the country for appendicitis. These three patients ought to have been saved. There was something wrong with those Yankee doctors; they were evidently not well versed in drainage.

DR. WILLIAM H. HUMISTON, Cleveland.—To make the report of these proceedings as accurate as possible, I will say that Dr. Price failed to take into consideration the two failures reported by one of the discussers. Dr. Skeel reported two deaths; Dr. Bonifield, one, but he did not operate on his case.

DR. SADLIER.—One patient upon whom I operated lived; but the other patient, that was not operated on, died.

DR. ROSS.—The two cases I reported were operated on. There was no perforation. I did not operate on them myself. There was a mistake in diagnosis. They died.

DR. MORRIS.—It is important to impress one or two points that have not been brought out in the discussion, one of which was hinted at by Dr. Sadlier—namely, the fortification given by the observations of Dr. Price. With the experience of Dr. Price we are not only fortified, but it seems to me we have a right to go into the peritoneal cavity for the purpose of taking out three or four ounces of septic fluid. Such a case was mentioned by Dr. Vander Veer. That gives us our basis for action, as well as our explanation and excuse for it.

DR. ROSS.—I would like to ask Dr. Vander Veer whether there was any perforation in his case?

DR. VANDER VEER.—No.

DR. ROBERT T. MORRIS, New York.—In some cases we find three or four ounces of reddish fluid loaded with streptococci outside the breastworks. This fluid is outside the field of the lymphatics. If we have in these typhoid cases three or four ounces of culture media, sending virulent toxins into the circulation outside of the control of the lymphatics, it seems to me that is a very important point, and one that needs to be brought out in connection with our fortification and reason for going into these typhoid cases in advance of perforation, and I have no doubt that in some of them perforations may be found that have been overlooked, and we will save lives. Our mistakes in gallstone surgery have shown us that we ought to operate on the cases in which we make mistakes and open up this new field. I think we

ought to remember that, with regard to washing out the peritoneal cavity, typhoid fever patients sometimes recover even after perforation has taken place, and with fecal matter in the peritoneal cavity, for the reason that it sometimes becomes walled in. We should bear that in mind.

WHEN SHALL WE PERFORM MYOMECTOMY AND WHEN HYSTERECTOMY IN UTERINE FIBROMYOMATA?

BY

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NEW YORK.

I HAVE been somewhat surprised and disturbed during my attendance at medical societies and through the perusal of current literature, to observe an effort to force upon the profession at large the most radical views regarding the evils proceeding from the presence of uterine fibromyomata and their removal as soon as discovered. If all those who have carefully and extensively examined into this subject had reached the same or approximately the same conclusions, even if I held contrary views modesty would forbid me to express them and I should remain silent. But we find that Noble, of whose scientific attainments and humanity we feel proud as Americans, after a careful analysis of his own and a vast number of the cases of others reaches the conclusion that in nearly all cases radical operation should be performed as soon as expediency will permit after the discovery of the tumor, and in keeping with this view in his extensive operative experience up to the time of the publication of his paper in the *Journal of the American Medical Association* last winter, that he had performed only twenty-two abdominal myomectomies, while the author, in a much more limited experience, has performed thirty-one.

On the other hand, we see Winter of Berlin, who has written a paper, recently published, in which he gives a study of 753 cases of uterine fibromyomata in his own practice (one of the most valuable and scientific contributions which has ever been made on this subject), reached a diametrically opposite conclusion and speaks with scorn of the surgeon who would operate on a fibroid tumor for no other reason than that of its mere presence. The facts which Dr. Noble[1] has presented in his great paper are indisputable, and it is a contribution of the greatest scientific value, but I take issue with his deductions, with his interpretations and

with the assumptions upon which he promulgates his law of procedure.

Noble assumes that a certain given percentage of patients would have died of the tumors alone. This we all agree to. He assumes that a certain percentage would have died of complications, among which as causes of certain death are mentioned pyosalpinx and ovarian cysts, these forming a considerable percentage of the complications which if left unoperated upon would have caused death. This assumption we cannot entirely agree to, for many cases of pyosalpinx do not cause death. In some cases the pus becomes innocuous or finds a natural exit. All cases of ovarian cyst do not cause death; many are mere retention cysts and do not at all tend to death. But leaving the correctness of these assumptions entirely aside, we know that a certain per cent. of the cases would die of the tumors and an added percentage of complications; does it then follow that we should operate radically on all or nearly all cases? By no means can such a conclusion be drawn from the facts now at our disposal. We must all agree that those cases which would otherwise have caused death or chronic invalidism should be operated upon. But this does not concern the vast majority of all cases which never reach such a stage, which cause no danger, and which have no complications. The general law made for the bad cases and the complicated cases should not be made to operate in benign cases and uncomplicated ones unless it can be shown that these cases become virulent and complicated. This, however, we all know is not true.

In order to establish this statement I herewith present the following facts: Ellice McDonald, in 175 miscellaneous autopsies held upon women, found that in those over 20 years old about one in every seven, or nearly 14 per cent., had fibromyomata. Now, if those who hold to this simple and easy rule, to operate on every fibroid as soon as discovered, could have their way, 14 per cent. of our female population over 20 years of age would be operated upon for fibroid tumors. This would for a time make abundant work for those who hold this view, and no doubt they would have a very small average death rate in their operations, but one which in the average would far exceed the natural death rate of fibroid tumors when allowed to run their natural course, and they would hear in no uncertain way from an outraged public as soon as that public became aware of what was going on. I have the strongest clinical evidence that by far the greater portion of these tumors do little or no harm.

An examination of 200 consecutive gynecological cases appearing in my office showed that 24, or 12 per cent., had fibroid tumors of various sizes. Of these 24 cases 8, that is, one-third, were advised to have radical operation—six to have hysterectomy and two myomectomy; of the remaining 16, or two-thirds of all the cases, two were advised to have curettage. The remaining 14, or more than one-half of all the cases, were advised, some to report occasionally for examination and some to report only in case anything unusual developed. I shall now present a brief outline of a few of these cases of fibromyoma of the uterus who have consulted me and have not been advised to have any radical operation.

CASE I.—Mrs. A. B. has been under my care for nine years. When she presented she was 23 years old, had been married six months. She was regular; periods lasted from six to seven days and she flowed freely and suffered much pain in the lumbosacral region, and some pain and sensation of weight in the pelvis on exertion between the periods. Diagnosis: Uterus retroverted with two small fibroids the size of an English walnut on the anterior wall of the uterus at the vesicouterine reflection of the peritoneum.

She was given local treatment for about a week when the uterus was replaced and a pessary was introduced. The uterus remained in place and symptoms were much relieved. Up to date this patient has had three miscarriages and borne two healthy children which are both living, the elder being now six years old. The pessary was not necessary after the birth of the older child, as the uterus remained in place without it. A recent examination shows only the faintest trace of fibroids.

CASE II.—Mrs. C. has been under my care for three years. At that time the history was negative up to the beginning of present disturbance. When she presented herself she stated that she did so at the urgent request of a medical friend not, however, her physician, and that she had a private room engaged at a hospital and expected to enter there the next day for a hysterectomy for fibroid tumor of the uterus, which she had been informed was undergoing cystic degeneration and urgently needed operation. She felt perfectly well, but for seven months had been quite irregular, having skipped several periods. For three months she had noticed rapid enlargement of the abdomen. Examination showed a seven months' pregnancy with living fetus, and a small fibroid tumor the size of a small orange on the upper right anterior segment of the uterus. Patient was informed of her condition and was with

some difficulty persuaded not to go to the hospital. Two months later I attended her in confinement; a very large baby was born dead. March 5, 1907, I delivered her of a large, healthy boy baby. At a recent examination I could find no trace of the tumor and both mother and child are in most vigorous health.

CASE III.—Mrs. W. H., age 43. Married six years; never pregnant. Consulted me on account of excessive and painful flowing. Diagnosis. Three uterine fibroids ranging in size from a hen's egg to a small orange. Curettage advised. Examination one year later shows fibroids growing slightly, but periods have been regular and there has been no return of excessive flowing. Patient is being kept under observation.

CASE IV.—Mrs. A. M., age 47. Had menopause one year ago. Married twenty-two years. Never pregnant. Had fibroid tumor removed by Dr. Polk by vagina, five years ago. Consulted me on account of excessive vaginal discharge. Examination. Uterus is the seat of several small, atrophied fibroids. Senile vaginitis. Treatment. Antiseptic douches and applications of nitrate of silver. After two months. No vaginal discharge. Patient perfectly well.

CASE V.—Mrs. P., age 40. Married twenty years. No children; one pregnancy nineteen years ago. Periods have always been regular; of recent years flows rather freely for three days; slight pain. Examination shows the uterus to be retroverted and the seat of several fibroids. The patient looks robust, feels strong and well and does not desire to bear children on account of her age. No operation advised.

CASE VI.—Mrs. M. C., age 25. Married four years; one child three years old. Instrumental labor. Regular, flows three days, slight pain; feels as though something was coming down in the vagina when she walks. Diagnosis. Small fibroid on anterior wall of uterus; lacerated cervix and perineum. Operation for repair of lacerations advised.

CASE VII.—Mrs. L. H., age 39. Married sixteen years; two children, last one fourteen years ago. Periods regular for the past four years; flow has lasted seven days and has been quite free. Periods ceased five months ago. Has some pain in lower right side of abdomen. Considerable leucorrhea. Diagnosis. Pregnant five months. Several small fibroids on the uterus; some as large as hens' eggs. No operation advised.

CASE VIII.—Mrs. S. T. Has been complaining six months; periods regular, twenty-eight days' interval; flows moderately; no

pain. Consults me because she thinks she has appendicitis. No definite history of attack. Shows slight tenderness over the appendix. Small uterine fibroid. Advised to keep under observation.

CASE IX.—Mrs. H. G., age 32. Married twelve years; never pregnant. Six years ago was curetted for menorrhagia; has been well and regular since until two weeks ago, when she began to flow, passing some clots. Diagnosis. Small uterine fibroid the size of an orange. Curettage advised.

I will not present more cases. The foregoing represents fairly the type in which no operation or only a palliative one is suggested, and represents about two-thirds of the cases having fibroids in my practice, not, however, taking into consideration cases referred to the hospital on account of fibroids, some of whom have mild symptoms and some absolutely none at all. I cannot pass from these cases without especially mentioning the quite considerable class where there are absolutely no symptoms. In this class fall some of the cases where I advise radical operation on account of size or rapid growth. In favor of the radical operation on all fibroids the exceedingly shallow argument is sometimes advanced that a patient never consults you unless she has symptoms. I have wondered if those who use this line of argument have never discovered a fibroid while making a general examination or examining a pregnant woman, or one who has just borne a child.

In about one-third of my cases I find that I recommend a radical operation, this being hysterectomy or myomectomy. When shall we perform myomectomy? In the thirty-one abdominal myomectomies which I have performed there have been two deaths (6½ per cent.) and four of the patients have become pregnant. Taking an equal number of consecutive cases of fibroids treated by hysterectomy, I find that there have been no deaths. For the purpose of this comparison I have looked up my records at the Post-Graduate Hospital for three years past and find that during that time I did thirty-four hysterectomies with no deaths and adding to these six done in other places, it makes forty consecutive hysterectomies in three years with no death. These represent the worst cases from those who have come under my very care and all presented symptoms which, according to my standard, demanded operation. In one case the chief indication was pain caused by the pressure of the tumor upon the ribs, yet this woman otherwise was quite well. I have not chosen here to present all of my hys-

terectomy cases, but only taking them as they came consecutively for three years, to compare them with approximately the same number of abdominal myomectomies, and this shows that as a general proposition myomectomy is much the more dangerous operation.

My average mortality, then, in myomectomy is greater than in hysterectomy, but I believe that with the more extended experience myomectomy will show a lessened mortality in my hands, because I have learned with a reasonable degree of certainty what cases may safely have myomectomy, and as my experience has accumulated I feel that the limits of myomectomy have become narrowed. One of my early cases in which the operation was undertaken to relieve sterility was of such a character as to greatly excite my enthusiasm for the operation. From this woman, operating by the abdominal route, I removed sixteen tumors through nine incisions. The patient made an easy and uncomplicated recovery and bore a healthy boy without any complications. He is now a sturdy little lad of six years. A more extended experience has taught me that this operation has its limits and that these are comparatively narrow; but it is an operation of extreme importance and beneficence to those for whom it is suited.

In the first place, we need consider myomectomy as a proper procedure only in those cases where child-bearing is desirable and is prevented or interfered with by the presence of a neoplasm, except in those cases of pedunculated tumors either into the peritoneum, uterus, or vagina, where tying off the pedicle would be simpler and safer than removing the uterus. In not all pedunculated tumors is this the case. Where there is a large tumor growing up into the abdomen from a pedicle more than an inch in diameter, I should prefer to do hysterectomy, except where pregnancy is to be considered. Then, with this restriction, let us consider what cases may come within the range of safety, size of tumors, location, character and number.

Those cases, which form a considerable majority of my whole series, where the tumors have been small, ranging from the size of a hen's egg down and located chiefly subperitoneally or much nearer to the peritoneum than to the endometrium, have all recovered and have given me but little uneasiness. Two cases, in one of which the tumor was single, interstitial, and about five inches in diameter, and the other in which there were two small subperitoneal tumors and one interstitial, one about four inches in diam-

eter, had very stormy recoveries and gave me great uneasiness.

The two cases which died had respectively three and five tumors which were so situated that the endometrium was much injured, and although repaired with catgut and the beds of the tumors carefully obliterated with continuous catgut sutures, yet both died of sepsis. Two other cases I desire to mention which were, of course, not in the list of myomectomies. One was a beautiful young woman, 27 years old, who had been married only three months. She had been flowing almost continuously since the time of marriage. Examination showed the presence of a fibroid about three inches in diameter in the anterior wall. I advised that a myomectomy be at once performed. The tumor was found to be interstitial and its situation was such as to necessitate the dissection of the bladder from over it. The enucleation proved very difficult. It was difficult to shell the tumor out from its bed, and finally a considerable sized piece of endometrium came with it. The former sad experience of losing two cases which had presented much the same physical characteristics decided me to complete the operation by removing the uterus. Prof. Brooks, pathologist of the Post-Graduate Hospital, found the tumor to be a sarcoma, but with no degeneration.

The second case was that of a woman about 40 years old, upon whom I had operated four years previously for an old salpingitis, doing a plastic operation on both tubes for sterility. She was brought to me in March, 1907, on account of symptoms of extra-uterine pregnancy. She had been flowing continuously for six weeks, following a skipping of one period. Examination showed a mass a little larger than a hen's egg in the right horn of the uterus. Operation was performed by me at the Woman's Hospital. Both tubes were entirely closed and impervious, and their ends covered over with dense adhesions. The mass in the horn appeared to be a fibroid tumor. I could not shell it out, so removed the uterus with it, leaving the ovaries buried in a mass of adhesions. The pathologist reports it to be *adenoma fibroma benignum*. This patient had suffered no pain.

Finally, however desirable it may be to retain the uterus for the purpose of child bearing, and where its size may not be great, yet myomectomy cannot be thought of, are those cases where there are a great number of small nodules scattered throughout the substance of the uterus or where the uterus is uniformly degenerated into a myomatous growth. When such uteri have reached a depth of six inches or more and are continuing to grow, if

symptoms demand interference this can only be in the form of a hysterectomy. If radical interference is necessary, hysterectomy I believe should be done in all cases where the question of child bearing is not involved and the tumor is not an easily removed pedunculated one. I perform complete hysterectomy with removal of the ovaries where the character and rapidity of the growth suggest malignancy; in others supravaginal, leaving the ovaries when healthy in patients who have not reached the menopause and removing them in those who have passed it.

Then I take as general indications for radical operation, that is, hysterectomy or myomectomy, the following:

Great size.—Causing visceral changes, exhaustion, and inconvenience.

Rapid growth or pain and hemorrhages.—Indicating that the tumor may be malignant.

Pressure upon ureter, bladder, rectum, or intestine.—Interfering with the functions of these structures.

Hemorrhage.—Which cannot be controlled except by radical operation.

Interference with labor.—As in the case of a tumor so situated in a pregnant uterus as to make normal labor impossible.

Causing sterility.—As when a tumor causes repeated abortions or prevents fecundation.

Pedunculated tumors, or indications of necrosis.

Various complications may exist in coincidence with the tumor which, taken together with it, will prove sufficient indication for operation.

I present herewith some reports and observations on this subject which have been recently published and which I think are valuable contributions.

Winter[2]: *Die wissenschaftliche Begründung der Indicationen zur Myomoperationen.* "Before all, the indications for myoma operations need a safer and broader foundation. Those operators who regard the mere presence of a myoma as a sufficient indication for its removal indeed are relieved of the trouble of a scientific foundation for their action; fortunately there are few such in Germany."

In a careful analysis of 753 cases he made the following most interesting and instructive observations: "Before the menopause abnormal bleeding occurred in 65 per cent. of the cases; after the menopause, in 2 per cent.; *i.e.*, in 16 cases out of 753. In these sixteen cases there were:

"Carcinoma of the body	4 times.
Sarcomatous degeneration	2 "
Gangrene of the tumor	2 "
Fibrous polypus	3 "
Cyst of the ovary	1 time.
No special cause	4 times.

"In one-third of the cases of hemorrhage in fibroids after the menopause there was malignant disease."

"Metrorrhagia in 12 per cent. of the cases in which it occurs was caused by malignant disease, and in 50 per cent. by submucous fibroids. Hence the great importance of metrorrhagia as a symptom and the necessity of proceeding against these cases radically."

"Submucous fibroids undergo sarcomatous degeneration in 8-10 per cent. of cases and lead most frequently to the severe forms of anemia. Hemorrhage may be relieved most satisfactorily in subperitoneal fibroids, also in interstitial when the canal is not too tortuous; in submucous never."

"Out of the whole number of 753 cases of myoma, 204 were operated on chiefly on account of hemorrhage. Of these

Vaginal conservative operations were performed	61 times.
Total vaginal extirpation	46 "
Supravaginal hysterectomy	97 "

"Seventy-five per cent. of all the cases operated on had suffered pain, and in 33 per cent. of the cases operated on pain was the chief indication."

"An absolute indication for operation is the occurrence of bleeding and pain in a fibroid after the menopause. In 50 per cent. of the cases of necrosis of the tumor a more or less severe intermittent pain occurred."

In regard to heart cases, Winter finds them to be quite rare except those due to anemia.

In 60 per cent. of his cases the heart tone and sounds were perfectly normal. In 30 per cent. there were murmurs which were interpreted as follows:

Caused by anemia	52 times
Caused by apparent anemia	16 times
Arteriosclerosis	6 times
Neurasthenia	2 times
Fatty degeneration	2 times

Dilatation and hypertrophy, not including valvular lesions, 3 times..... 1%
Valvular lesions, 3 times..... 1%
Changes in the myocardium, 3 times..... 1%

He does not advise operating on a tumor either on account of large size or rapid growth unless symptoms be present; nor yet the fear that symptoms may set in. He considers that after the symptoms set in there is ample time to operate.

Dr. Karl Fleischmann (3) in the preceding eight years operated on uterine fibromyomata in 130 cases; 73 cases were operated on by the abdominal route; 65 of these had supravaginal hysterectomy with 3 deaths; that is:

Four times total hysterectomy, 1 death.

One supravaginal amputation with extraperitoneal treatment of stump.

Three times myomectomy of subserous myomata.

All recovered.

The total death rate in the 73 cases operated on by the abdominal route was 5.47 per cent.

By vaginal route, 57 cases.

Total extirpation, 50; all recovered.

Total extirpation begun by vaginal, ended by abdominal route, 2; one death.

Enucleation with retention of uterus, 4 cases; all recovered.

Total death rate by the vaginal route was then 1.75 per cent., and mortality in the entire 130 cases of 3.84 per cent.

Of the abdominal cases which died, one died of pulmonary embolism, one of secondary hemorrhage, one of heart degeneration, and one of sepsis which had been complicated by pyosalpinx.

"According to my opinion, when one has a patient with a bad heart and an excessive anemia from frequent hemorrhages, he should choose the operation of shortest duration."

The following complications were observed:

Sarcomatous degeneration, 5 times..... 3.1%
Necrosis and gangrene, 8 times..... 6 %
Extensive calcification ..... Once
Carcinoma of fundus near fibroid ..... Once
Pregnancy, 3 times.....
Ovarian cysts, 4 times..... 3 %
Severe pyosalpinx, 5 times..... 3.1%

Fresh peritonitis extending from double pyosalpinx ..... One case
Chronic appendicitis, 4 times ..... 3 %
Large umbilical hernia ..... One

He prefers the supravaginal extirpation and only used total extirpation where extensive drainage was necessary.

The small number of cases in which carcinoma has occurred in the remaining stump of cervix is not sufficient to influence the method of operation.

Vaginal operations had a less mortality than abdominal, but they required more time and caused the loss of more blood than the abdominal.

He makes no note of the fact that all the worst cases were operated on by the abdominal method in comparing vaginal with abdominal methods.

"The removal of a myoma is a serious operation, however, whether undertaken per vaginam or through the abdominal route, and should be undertaken only as a result of definite indications. Also the fear that a tumor which now may be removed by vagina may later have to be attacked by abdomen is by no means to be considered as magnifying the indications for operation."

Döderlein has done abdominal myomectomy in 232 cases, with a mortality of 3.4 per cent., and by vaginal 198 cases, 4.5 per cent.

Fehling (4) says: "I will not take into consideration here the indications for myoma operations, which are shown by their statistics to be very different in different clinics."

"Since a myoma is a benign growth, it is proper whenever possible to give preference to the removal of the new growth itself, leaving behind the uterus and the adnexa, provided the ovaries are not morbidly degenerated."

"One may easily decide to do myomectomy in the case of a subserous tumor which from its size is encroaching upon the space of the abdominal cavity, or causing symptoms by attachment to neighboring organs."

"Above all is myomectomy indicated when a tumor which causes hemorrhages is so situated as to admit of its removal. This must be done by the vaginal method."*

"If one removes tumors accidentally discovered, whose size and connections in the abdomen are causing no harm and do not cause hemorrhages, 'so nacht der operateur nur eine Luxus operation

*Experience does not prove this statement to be true.

und noch dazn eine recht gefäarhliche.' So the operator performs an unnecessary and right dangerous operation."

In advocating the abdominal route for myomectomy he quotes the following statistics:

Hoffmeyer, 13 abdominal enucleations, 5 deaths..	38.5%
Olshaüsen, 37 cases with 4 deaths.....	10.8%
Schauta, 25 cases with 5 deaths.....	20 %
Wyder, 48 cases with 6 deaths.....	12.7%
Döderlein, 14 cases, no deaths.....	
The average being a death rate in 137 cases of	14.57%

Sarwey gives a list of 465 cases with a mortality rate of 9.6 per cent., which Fehling regards as too low.

Also the patients in 16 per cent. of cases have recurrences, a proposition not compensated for by the proportion of pregnancies.

Haultain (5): "The development and growth of fibroid tu-
of 260. This does not take into consideration cervical submucous
mors in the cervix uteri occurs in about 5 per cent. of all uterine fibromyomata. He has met with them in 30 cases out of a total fibromyomata."

"The bladder in all cases was displaced upward into the abdomen. All were incarcerated in the pelvis and gave rise to well-marked symptoms, especially in connection with the bladder."

"In 22 cases considered hemorrhage was present in 10 as a symptom. In 2 cases the tumors showed signs of degeneration; these were edematous and gangrenous."

He finds operation on cervical fibroids much more difficult than those on the body, and has a death rate of 10 per cent., as compared with hysterectomy for fibromyoma of the body, where his mortality has been only 1 per cent. Three of those deaths were due to septic infection; the cause of the fourth is not stated.

Finally, after a consideration of the subject from all points of view, I feel that there is no disease to which women are subject where each individual case requires to be considered alone and treated according to conditions and symptoms present than uterine fibromyoma. I hold that all those who fail to give this careful consideration to each case and who adopt the rule to operate as soon as expediency will permit after their discovery are failing to give their patients scientific treatment.

There are a number of happy little children in New York who owe their existence to the fact that I hold these views, and I have

the satisfaction of knowing that those few cases who have died after operation have done so trying to obtain relief from symptoms which actually demanded operative interference.

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ENUCLEATION OF LARGE EXTRAMURAL INTRALIGAMENTARY UTERINE MYOMATA, WITHOUT MUTILATING ANY PELVIC ORGAN. TWO CASES AND REMARKS.

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THE surgical treatment of uterine myomata by accredited operators is now so satisfactory in its results that the field for further improvement is extremely limited and confined chiefly to minor details and the management of special conditions encountered during an operation. Not many decades ago, before the modern methods of pelvic surgery were evolved, a uterine myoma indicated generally some form of what may be termed expectant treatment, or hysterectomy. Gradually, as the technique improved, attention was given to conservatism in the work. The evolution of this phase of pelvic surgery presently made it plain that in certain conditions it was neither necessary nor even justifiable to remove the uterus or any other pelvic organ. Thus the term myomectomy appeared in our literature, and it will ever hold a prominent place in the list of the operative procedures of the gynecologist.

As a general rule, a patient, at or near the climacteric, who has a simple pedunculated subperitoneal, or an ordinary submucous tumor, is relieved without mutilation. For obvious reasons in younger patients the scope of the work has been widened and its limitations vary according to the avocation and condition of the patient and the experience and skill of the operator. Still, in regard to certain phases of this form of conservative surgery, the pendulum of medical opinion continues to swing and will do so until experience leads to the solution of more surgical problems. After a review of all the literature available, I have failed to find any record of a successful myomectomy for an intraligamentary myoma of a size sufficient to crowd the abdominal and pelvic cavities. Yet it is not without some diffidence that the following cases and remarks are presented for your consideration. It should be borne in mind that the remarks are applicable only to cases in which the growth is large.

CASE I.—Large myoma on right side of the broad ligament. Mrs. T. H., age 43 years, entered St. Joseph's Hospital, Guelph, December 26, 1906. Family history: Excellent. Personal history: Until last October she had always enjoyed excellent health and, except when her only child was born, had never been confined to her room. Married eight years; one child five years of age; one abortion before birth of child at second month of gestation. Menstruated first in her twelfth year and had never missed a period except during term of pregnancy and lactation.

In May, 1906, she noticed that her abdomen was larger than formerly and by July the enlargement was so pronounced that she consulted a medical man, who, after an examination, told her that she was in the sixth month of pregnancy. Being regular, and having no other sign of pregnancy than the enlargement, another physician was consulted, who arrived at the same conclusion. In October symptoms due to pressure became troublesome and gradually grew in severity. The vesical irritation caused the most distress, and by the middle of December she had to void urine hourly. I saw her on the 20th of that month and advised her to go to the hospital for surgical treatment.

After entering the hospital, a careful examination failed to detect any other abnormal condition than a large myoma, which caused pressure symptoms on the abdominal and pelvic viscera. At this stage the outline of the abdomen resembled very much that of a woman at the full term of pregnancy, but palpation showed that the contour of the tumor was irregular. Closer examination showed that the growth filled the pelvic as well as the abdominal cavity, that it was firmly fixed, and that its lower portion almost reached the vaginal orifice. The cervix was displaced to the left and backward. With considerable difficulty a sound was passed, which took a course to the left and backward instead of into the tumor.

The history of the case and the character of the growth left no doubt as to its nature, and the data, to which reference has been made, indicated its probable situation and site of origin. On the 29th of October she was taken to the operating room and a long median incision was made from above the umbilicus to the pubes, through all the structures to the subperitoneal tissue. It was then found that the tumor in its growth had stripped off the serous coat from the anterior wall of abdomen up to the umbilicus. The abdominal cavity was then opened by cutting through the parietal peritoneum from the site of its reflection at the umbilicus upward.

On introducing my hand the uterus was located on the left side of the tumor. It was flattened and greatly elongated by pressure. Its fundus was near the summit of the growth, and, the cervix being in the pelvis, one can judge to what extent the body of the organ was stretched. In fact, the distorted organ formed a por-

Fig. 1.—Large intraligamentary myoma successfully enucleated without injury to uterus or any pelvic organ. Weight of tumor, twenty-six pounds. Recovery.

tion of the sheath which enclosed the upper part of the myoma and separated it from the peritoneal cavity. The right fallopian tube could be traced running to the right over the summit. On the right side the cecum and lower portion of ascending colon

were found to be pushed upward and spread over the surface. The rough diagrammatic figures will probably convey a better conception of the conditions that existed than my written description.

Figure 1 shows a cross section of the tumor and its sheath. Figure 2 is a lateral longitudinal section through tumor and uterine portion of the sheath.

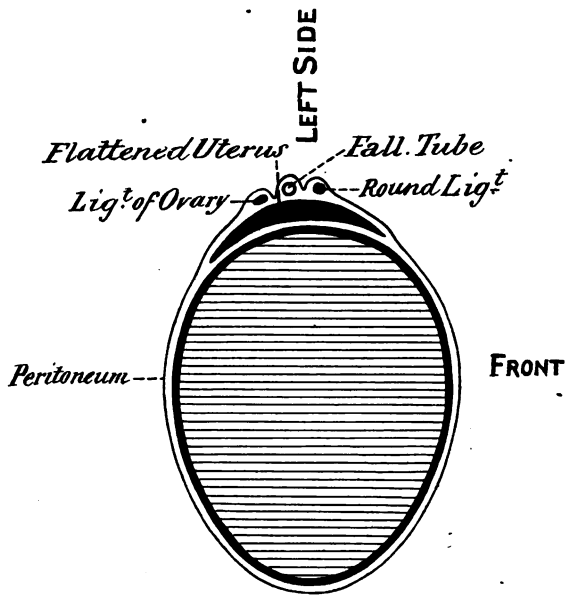

Fig. 2.—Cross-section of tumor and its sheath.

Figure 3 is an antero-posterior longitudinal section showing the high point of the reflection of the peritoneum in front and behind. Also the low elevation of bladder in median line in front.

Below the umbilicus in the line of the incision the tumor was covered by a layer of subperitoneal or areolar tissue; this was divided and the smooth surface of its capsule exposed. This area of exposure was extended upward several inches by cutting, in addition, the peritoneal covering of the tumor. Then, two forceps were attached to the whole thickness of the sheath near the upper end of the incision in it, and given to an assistant to hold, with instructions to make some traction away from the tumor and toward the chest of the patient. This procedure made it easy for me to introduce my hand under the sheath and on the smooth surface of the capsule proper, effectually protecting the abdominal

viscera from being soiled, or even touched or exposed during the enucleation. Except the pedicle, I found no firm adhesion anywhere between the sheath and the tumor. When a sulcus on the irregular growth was reached the obstruction was easily overcome by making the detached sheath at the part tense by traction and then raising the points of my fingers off the tumor. By these means and by traction on the tumor with Tait's corkscrew the enucleation and delivery were accomplished with astonishing ease.

The site of the attachment of the pedicle to the uterus was

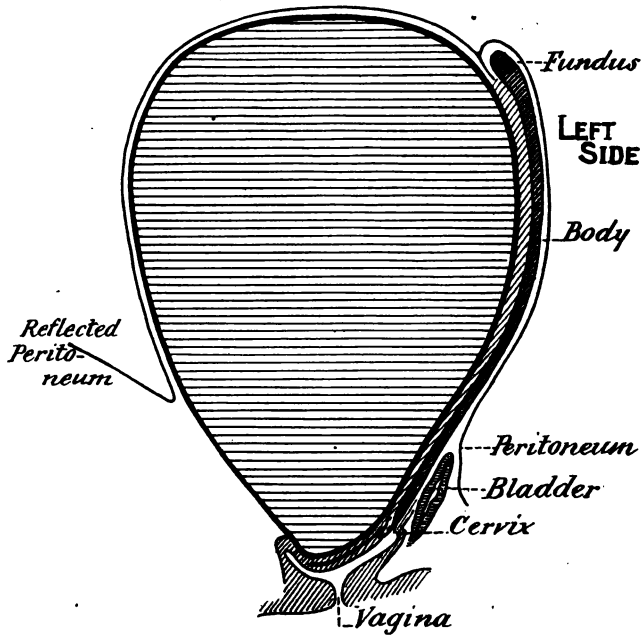

Fig. 3.—Lateral longitudinal section through tumor and uterine portion of sheath.

on the right side near the middle of body of the organ. The pedicle was not larger than an ordinary penholder. It was tied with a No. 1 sterile catgut and this was the only ligature used in the operation. There was practically no loss of blood, merely a little oozing during the stripping of the sheath. It appeared marvelous to me how quickly the displaced and stretched organs and the other structures retracted and contracted toward their normal condition. The contraction made the opening in the peritoneum very small, and there being no oozing, the wound was

closed in layers without drainage. No shock resulted from the operation and the patient recovered without a single untoward symptom. An examination twelve days after the operation found all the pelvic organs normal. The tumor weighed a few ounces more than sixteen pounds. I visited the patient last week and found her enjoying excellent health, with no indication of any pelvic or other derangement.

CASE II.—Large myoma in left side of the broad ligament.

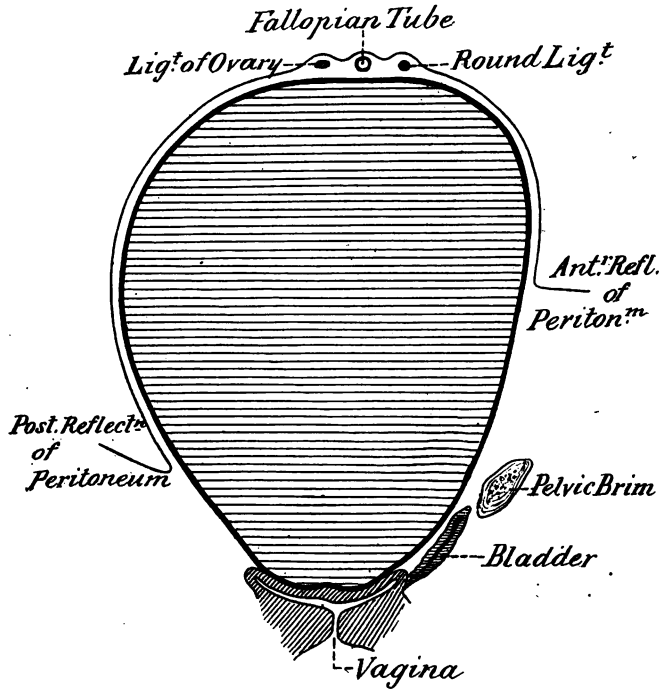

Fig. 4.—Antero-posterior longitudinal section, showing high point of reflection of peritoneum in front and behind, also low elevation of bladder in median line in front.

Miss A. G., age 32, height 5 feet 2 inches, was admitted to the hospital on the 19th of March, 1907. Family history: Negative. Personal history: In childhood she had infantile paralysis, which affected the extensor muscles of her left leg, causing her to limp in walking. Otherwise, until a short time before coming to Guelph, she had always enjoyed excellent health. Her first menstrual period appeared in her thirteenth year, and since that time she had never missed a period. Its duration had always been

three days and the flow had never been excessive. In 1903 she noticed that her abdomen was more distended than formerly, but as her health was good no attention was paid to it. Slowly, as time passed, the enlargement increased without causing anxiety until pressure symptoms and her unwieldy form became pronounced. An examination showed that the abdominal and pelvic

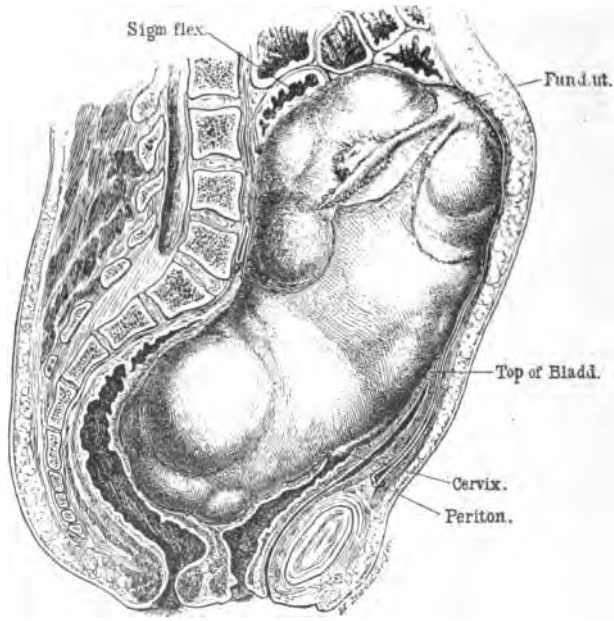

Fig. 5.—Complicated Hystero-myomectomy, Showing Extensive Subperitoneal Development.

The cervix is raised high out of the pelvis, and the bladder has been forced up into the abdomen. The fundus uteri lies high above the umbilicus opposite the displaced sigmoid flexure. The line of reflection of the peritoneum over the side of the tumor is shown. Hystero-myomectomy. Recovery. February 9, 1895.

cavities were crowded almost to the limit of endurance by a large myoma. The lower ribs were pushed upward and bulged outward. All that could be ascertained by vaginal examination was that the whole pelvic cavity was filled almost from inlet to outlet by an immovable rounded mass. The cervix could not be reached. On the right side of the pelvic portion of the tumor a flexible bougie could be passed for a considerable distance without meeting obstruction, but on the left side and in front of it the instrument was arrested after passing a short distance. I found

that it was impossible to pass a steel sound into the bladder, so its location could not be determined.

On the third day after this patient entered the hospital I opened her abdomen and found the parietal peritoneum below the umbilicus stripped in the same manner as in my first case. On inserting the hand the flattened uterus was located on the right side of the tumor, with its fundus near the summit and the left fallopian tube running to the left across it. An effort was made to determine

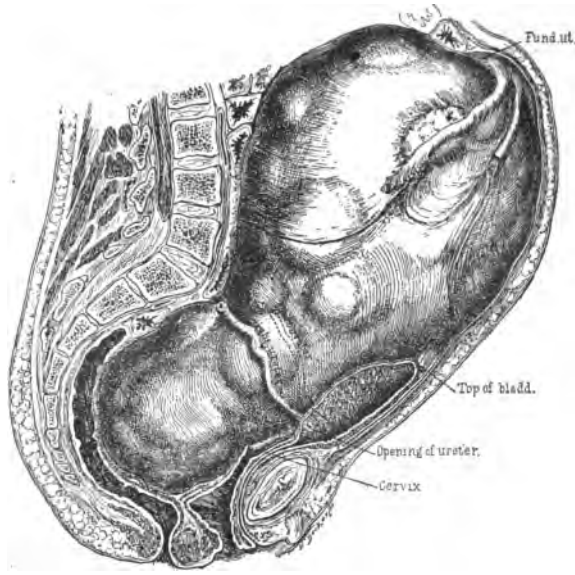

FIG. 6 —COMPLICATED HYSTERO-MYOMECTOMY.

The pelvic peritoneum is displaced high up into the abdomen by the enormous myomatous uterus, as indicated by the line beginning above the bladder and extending up to the round ligament, the oviduct, and ending above the sacral promontory. The fundus lies above and on top of the uterus; above the umbilicus lies the sigmoid flexure, seen in cross section. The bladder lies wholly in the abdomen, and both ureters are displaced above the pelvic brim; the left is indicated in dotted outline. The pelvis is also choked by the tumor, and the cervix lies near the level of the superior strait behind the symphysis. Hystero-myomectomy. Recovery.

the course of the left round ligament, but I failed to find even a trace of it. To the left of the incision a portion of the large bowel, probably the sigmoid flexure, was spread over the surface. No difficulty was encountered in the enucleation and delivery of the abdominal portion of the tumor, but in separating the left side of the pelvic portion I had some trouble. Here, it had to be cut with scissors and torn, leaving a portion of it, which was removed at a later stage of the operation. It is probable that the

difficulty was caused by failure of my hand to follow the proper line of cleavage owing to some inequality of the surface of this part which I failed to notice at the time.

The pedicle was attached to the uterus a little below the left fallopian tube. It was tied, as in the other case, with fine catgut. In this case there was a little oozing in the pelvis, for which a drain was inserted in the lower end of the wound. It was removed the following morning. The recovery of the patient was rapid and uneventful. The tumor weighed twenty-six pounds, or more than one-fifth the total weight of the patient before the operation. The photograph appended, taken several days after the removal, gives a fair representation of the contour of its anterior surface and its outline. Unfortunately, no article of known size was photographed with it for comparison. Its pedicle is not visible in the photograph; the tag at the lower end was caused by faulty enucleation of pelvic portion.

The broad ligament sheath, or cap, which covered the upper part of the abdominal portion of the tumor in both instances, was capable of great distention without being torn. It is possible, nay, probable, that in future these large growths may be enucleated without opening the peritoneal cavity. By making the abdominal incision through the outer margin of the right, or left, rectus muscle, according to the site of origin, one can get away from the anchored part of the parietal peritoneum at the umbilicus.

By exercising ordinary care there is no danger of cutting the bladder, for it is pushed aside with the uterus. In neither of my cases was the bladder raised above the pelvic brim in the median line. True, a ureter may cross in front of the pelvic portion or even higher, but, by keeping the enucleating hand on the smooth capsule of the tumor, there is no possibility of injuring it or any other organ. In structure the character of both the tumors was that to which some authorities apply the term edematous fibroid.

The ease and rapidity with which I was enabled to remove these large tumors without injuring any pelvic organ and with practically no loss of blood or exposure of the abdominal viscera, the requirement of only a small ligature for each case, the absence of shock afterward, and the quick recovery to perfect health, have convinced me that for such conditions enucleation is preferable to hysteromyomectomy, regardless of the age of the patient or the size of the tumor.

In the modern works on gynecology are to be found records of similar intraligamentary myomata and beautiful illustrative plates, which, in my judgment, indicate with more than ordinary clearness conditions that are more easily and more safely relieved by enucleation than by hysteromyomectomy; besides by enucleation we preserve the pelvic organs. Through the kindness of Dr. Howard Kelly of Baltimore I have obtained permission to photograph figures 513 and 514 in the second volume of his exhaustive and admirable work on "Operative Gynecology." It was during an examination of these cuts that I first came to the conclusion that all large, single, intraligamentary, uterine myomata which have the conditions shown so plainly in the plates must be extramural.

In the small space on each side of the body of the uterus, between the folds of the broad ligament, run the large bloodvessels and lymphatics which supply the uterus with the requirements for its nutrition, and the nerve trunks which transmit the impulses of the emotions that affect the organ. Then, in this situation at the base of supply, it is natural to believe that the adjacent uterine tissue is more developed and more capable of prolonged action than that of the more distant parts. A growth, then, should develop here quicker than in the other parts and hence cause greater irritation and muscular action; besides, there is the absence of the tense and closely adherent peritoneal coat which in other parts of the uterine body makes considerable resistance to any local protrusion of the underlying parts. When the point of origin of a myoma is near the surface of either of the lateral spaces the conditions undoubtedly favor its expulsion from the uterine wall into the broad ligament.

Take into consideration the smallness of the combined area of the lateral spaces, review the records bearing on the subject, each using his own personal experience, and then I believe you will concur with the statement that the relative proportion of the intraligamentary myomata that becomes extramural or pedunculated is greater than that of the varieties which originate under the peritoneum elsewhere on the body of the uterus.

The following are the chief points in the differential diagnosis between this and the other varieties—namely, the immovable condition of the tumor, the amount of pelvic involvement, the comparatively rapid growth, the absence of menstrual derangement and, when the cervix has been forced above the pelvic brim, the difference in the length to which a flexible bougie can be introduced on the opposite sides of the vaginal portion of the growth.

A CASE OF SUBPERITONEO-PELVIC FIBROID COMPLICATING A FOUR MONTHS' PREGNANCY. HYSTERECTOMY. ENUCLEATION OF FIBROID. SECONDARY HEMORRHAGE ONE WEEK AFTER THE OPERATION. PELVIC ABSCESS. RECTOVAGINAL FISTULA, RECOVERY.

BY

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Cincinnati.

THIS patient, Mrs. L., German descent, was referred to me March 14, 1907, by Dr. Neufarth, Sunman, Ind. Farmer's wife; mother of five children. The last child was born dead five years ago. All labors were normal except the last, which was very protracted and terminated in the spontaneous delivery of a dead and macerated child. The menstrual history shows a marked irregularity in periodicity during the past year; one, two, and even three months having been omitted. She menstruated the last time December 2 to 5, 1906. Father died aged 55, of carcinomi recti; mother died, aged 54, of biliary calculi. Four brothers and two sisters are living and in good health; two brothers died in early infancy and one died, aged 24, of typhoid fever. One sister died, aged 22, of pulmonary tuberculosis and another, aged 6, of scarlatina. Patient's general condition good. She complained of nothing except a sense of discomfort in the epigastrium and a feeling of weight in the pelvis. Appetite good, bowels constipated.

Physical examination revealed, first, an extensively lacerated perineum; second, a pelvic cavity filled by a firmly fixed tumor, free from tenderness and of semi-solid consistency; third, the os uteri can be reached with difficulty only above the level and in close contact with the upper border of the symphysis pubis; fourth, another tumor, the size of the fist, can be felt through the abdominal wall in the suprapubic region; fifth, inspection shows no discoloration of the vulval or vaginal mucous membranes and the "vaginal pulse," indicative of pregnancy, is absent. Besides the above, the patient portrays nothing abnormal.

Diagnosis.—Uterine fibroid or fibroids, possibly complicated with pregnancy. Of the latter one could not be at all certain, because of the irregularity of menstruation and the absence of all other local or general symptoms of gestation. The sense of weight in the pelvis and the discomfort in the epigastric region were explained by the presence of the tumor filling the pelvic cavity. It was impossible to determine at the time whether the mass in the pelvis was the retroflexed uterus containing an interstitial fibroid and the tumor above representing a pedunculated fibroid in the anterior uterine wall; or whether the suprapubic tumor was the uterus and the tumor in the pelvis a pedunculated (or separated) fibroid either intraligamentary or subperitoneo-pelvic.

Treatment.—Hysterectomy suggested, even though pregnancy should exist. This advice was given for the following reasons: 1st. If the tumor occupying the pelvic cavity was the retroflexed uterus containing an ovum as well as an interstitial fibroid, the pregnancy could not continue to exist very much longer with the uterus in this position. 2nd. If the tumor in front and above the symphysis pubis was the pregnant uterus, the embryo (or fetus) could never be delivered per *vias naturales* at any period after the fourth month of gestation. 3rd. The use of the uterine sound for diagnostic purposes was certainly contraindicated in this case. 4th. Under the circumstances it did not seem right to postpone radical procedures until either a positive diagnosis of the existence of pregnancy or the exact character of the tumor could be established; besides, the conditions present made it very doubtful whether an absolute diagnosis would ever be possible and the policy of waiting for further developments would have implied an invitation of complications arising from local, as well as constitutional disturbances.

Operation, March 25, 1907, four months after the last menstruation. The existence of pregnancy revealed itself the moment the abdominal cavity was opened. The pregnant uterus was in immediate contact with the anterior abdominal wall, the fundus almost on a level with the umbilicus. There were no adhesions; both broad ligaments with ovaries and tubes were floating loosely on either side of the womb. The entire genital apparatus was easily lifted from the abdomen through the incision. But there was no tumor in sight. For a moment the horror of having committed a serious blunder flashed through the minds of all present. But, passing the hand into the abdomen to the pelvic inlet, a real tumor, filling the pelvic cavity to the brim,

was discovered, greatly to the relief of all. But the conditions found were entirely different from what had been expected and certainly unique in my own experience. It was the first time I encountered a distinctly subperitoneal pelvic growth, and it was at once apparent that unless the uterus was reduced in size or completely removed it would be impossible to deal with the tumor intelligently and safely. The growth so occupied the pelvic cavity that the examining finger could not pass anywhere between it and the pelvic wall. The stretched vagina was pushed against the symphysis in front, the rectum and lower third of the sigmoid flexure against the sacrum and left sacroiliac synchrondrosis behind. The bladder, uterus and appendages had been carried above the pelvic brim and over to the right so that the cervix was entirely past the median line.

Emptying the uterus by incision was promptly discarded. Not enough room could be gained thereby and it would certainly pave the way for sepsis subsequently. Amputation of the uterus and its adnexa appealed to me as the best method of procedure, not only in creating all the necessary space to remove the tumor, but giving the patient the best chance for recovery.

Hysterectomy was promptly performed, the portio vaginalis alone being permitted to remain. An incision was then made through the peritoneum covering the tumor, extending from the cervical stump to the left sacroiliac synchrondrosis and, with the sweep of the index finger, the peritoneum was easily separated from the tumor. Unable to introduce my hand through this opening to enucleate the mass, another incision was made into the peritoneum extending from the center of the first cut to the left iliopectoneal eminence. Through this opening the fingers and subsequently the whole hand were easily insinuated between the neoplasm and the soft parts of the pelvis. The adhesions, which were strongest near the cervix, were carefully broken up and the tumor liberated with some difficulty. There was very little hemorrhage. No bloodvessels had to be tied. The oozing was promptly arrested by packing the pelvic cavity firmly with gauze sponges wrung out in hot, sterilized, saline water. After this the peritoneal folds were placed back in their normal position and united with very fine catgut. The cervical stump, too, was carefully sewed over with ordinary No. 4 catgut. The abdominal incision was closed without drainage.

The first week following the operation the case progressed without a single untoward symptom. Pulse and temperature were

normal at all times. The bowels moved freely and regularly after the first twenty-four hours. On the morning of the eighth day a copious and threatening hemorrhage occurred from the vagina. Upon my arrival, one hour later, the patient portrayed the most impressive picture of profound exsanguination. The hemorrhage had ceased spontaneously, apparently, because there was no more blood to be lost. The effect of the hemorrhage was met by lowering the patient's head, placing warm-water bags against her sides and the subcutaneous injections of strychnine and digitalin. Intravenous injection, hypodermoclysis and enemata of the normal saline solution were omitted under the belief that hemorrhage had ceased because of lack of arterial pressure. Instead, small quantities of albumin were administered by the mouth at short intervals. There was no return of the hemorrhage and the patient rallied slowly but steadily.

Ten days after the operation, forty-eight hours after the hemorrhage, the patient's temperature began to rise slowly. There was no pain; indeed, she expressed herself as feeling quite well. On the twelfth day the temperature had risen to 102.5° F.; pulse, quite distinct, 120. The abdomen was flat and free from tenderness. Digital examination of the vagina, the first since the operation, revealed a tender fluctuating swelling, the size of an orange, behind and to the left of the cervical stump. Evidently an abscess had formed in the subperitoneal space. This was promptly opened by an incision immediately behind the cervix and the cavity gently packed with gauze. The subsequent treatment consisted of removal of the gauze, irrigation, and repacking of the abscess cavity at proper intervals.

The patient recovered slowly but perfectly. She left the hospital six weeks after the operation with a small, not very annoying fecal fistula within the incision through which the abscess had been evacuated. This, too, closed in due time.

ARGUMENT.

Difficulties of Diagnosis.—No one will appreciate more the difficulties of diagnosis in a case of this kind than the experienced obstetrician, gynecologist, and abdominal surgeon. As to the existence of pregnancy in this instance, there was but one symptom present—cessation of menstruation for a period of not quite four months. The value of this symptom was very much reduced because of a similar experience during the past year. Though the possibility of a pregnancy was not altogether excluded, the case

was regarded as one of multiple uterine fibromata, and, as the history of these growths justify a prompt removal, an operation was advised and accepted. The writer knows of no means by which a diagnosis of a subperitoneo-pelvic growth could have been established in this case prior to the operation. The use of the sound for diagnostic purposes was strictly contraindicated here, to say nothing of the fact that, as an instrument of diagnosis, it is of comparatively little value and very frequently it becomes a source of danger.

Was the operation the proper procedure, and justifiable at that period of gestation? Could the growth have been successfully removed per vaginam? It is difficult to see what other method could have been adopted under the circumstances. It is freely admitted that, had the exact location and character of the tumor, and the existence of pregnancy been known positively, this knowledge would have been an inducement to adopt one of two procedures—namely, to enucleate the fibroid through an incision in the vagina and let the pregnancy take care of itself; or to wait until the period of viability had been obtained, then make a Porro-Cesarean operation and remove the tumor. From what we know of the case now, it is extremely doubtful whether the period of viability would have been reached with safety, and, even had this been possible, the child's chance for life would not have been very good, nor would the prospect of the mother's recovery been much improved. Removal of the tumor through the vagina would have been a comparatively safe and, perhaps, not a very difficult procedure, saving both mother and child. The worst that might have happened is a miscarriage or premature birth. But neither the pregnancy nor the location and character of the tumor could be definitely determined by any means before the abdomen was opened.

Was this tumor the cause of the prolonged and difficult last labor and of the still-birth? This is merely a matter of speculation, though it is more than likely that the tumor was in its infancy at that time; because the child was born (vertex presentation) with an excessively molded head and depressed cranium. The body was macerated.

Was the catgut, used in ligating the uterine arteries and closing of the cervical stump, responsible for the secondary hemorrhage? Ordinary sterilized catgut No. 3 was employed, and it is not at all improbable that, when the catgut began to soften after 24 or 48 hours, a slow bleeding began; not enough for the blood to show

externally, but sufficient to cause distention within the stump, thus gradually increasing the hemorrhage and producing a leakage into the subperitoneal space. It is well known that there are many abdominal surgeons who refuse to use catgut for ligatures within the abdominal cavity for this very reason. For more than twelve years I have used nothing but catgut and with constantly good results. Previously it was my custom to use silk, with results not very satisfactory. If an infection occurred within the field of operation, complete recovery was delayed until the ligatures had come away either through the vagina, the abdominal incision, or some other avenue. For this reason silk was abandoned for catgut, and thus far without regret. While it is possible that the catgut may be to blame for the trouble that followed the operation in this case, we can by no means be certain of it.

Was the abscess the result of the secondary hemorrhage? Or was a previously formed hematoma within the subperitoneal space the cause of the hemorrhage? The writer is disposed to believe that the severe hemorrhage at the end of the eighth day was the result of a hematoma within the subperitoneal space. This hematoma began to form slowly, early after the operation, and resulted from an oozing from the raw surfaces created by the enucleation of the neoplasm. The peritoneal folds, being loosely attached to the other soft parts of the pelvis, yielded readily and painlessly to the accumulation of the coagulum. This explains why there was no pain nor rise of temperature during the first eight days following the operation. About this time, however, a good deal of tension must have been created by the clot, in consequence of which one or the other, or both, of the uterine arteries gave way and the blood found a ready outlet through the cervical canal. After the hemorrhage ceased an avenue of infection (the cervical canal) between the vagina and the hematoma had been established. The infection was prompt and the abscess quickly followed.

As the patient's condition was in every way satisfactory during the first week there was no necessity or even an excuse for a digital examination. Nor was it deemed proper to make a digital investigation at the time, or soon after, the hemorrhage had stopped. An examination was promptly made the moment symptoms manifested themselves that pus had formed somewhere. This was on the twelfth day after the operation and on the fourth day after the hemorrhage. Had the hemorrhage occurred in the absence of a hematoma the blood could not have found its way

into the subperitoneal space, because of the firm union existing by that time between the peritoneum and the pelvic soft parts. Hence it is reasonable to presume that a hematoma was present in this region when the hemorrhage came on; that the hematoma caused the hemorrhage as described and in consequence of which the hematoma became infected from the vagina through the cervical canal.

History of uterine fibroids. Fibroid tumors of any kind rarely complicate pregnancy. The rarest form of uterine fibroids is the subperitoneo-pelvic variety, which, it is claimed, originally spring from the uterus, but in the course of development become separated from that organ and remain independent, as illustrated in the case just presented. According to Mann, only 650 cases of fibroids complicating pregnancy have been reported the world over. Mann quotes C. P. Noble, who collected 2,274 cases of fibroids, of which only nineteen (0.08 per cent.) became pregnant, six of which were ectopic. The same author also quotes Pinard and Schroeder. The former observed 84 fibroids in 13,917 labors, 0.06 per cent. The latter met the complications 25 times in 20,000 labors, 0.012 per cent. Mann, in his own extensive experience, met with ten cases of pregnancy associated with fibroids.

The writer has seen only four cases of fibroids complicating gestation in thirty-two years of private and clinical practice. One of them belonged to the interstitial, two were of the pedunculated (subperitoneal), and the fourth, reported above, of the subperitineo-pelvic variety. The first was delivered by Cesarean section after being in labor three days. The child was dead and the mother died of sepsis. The second and third delivered themselves and never reappeared for treatment. The fourth was treated as above stated. It is well known that, ordinarily, women with fibroids do not become pregnant and that those who have had children very rarely suffer from fibroid tumors of the uterus. My first three cases were all primipara past the age of thirty; the fourth was a five-para past the age of forty. The general opinion held by authors is that sterility is the cause rather than the effect of fibroids. Hence the frequency of uterine fibroids in the unmarried and multiparous women.

Pregnancy has a two-fold effect upon fibroids: *First,* with the increased blood supply to and gradual growth of the uterus, the tumor or tumors, too, increase in size. This growth is due to an actual increase in the fibromyomatous tissue as well as a considerable amount of edema. The latter condition was especially well

marked in the specimen presented and because of its semi-fluctuant consistency gave rise to the suspicion that the pelvic tumor was the uterus, if pregnancy existed at all. *Second,* opinions are somewhat at variance as to the effect of involution upon the tumor in case of miscarriage, premature labor or delivery at term. The immediate effect is, no doubt, a reduction in the size of the fibroid, usually to the dimensions it possessed before conception. While it cannot be denied that sometimes the fibroid may be entirely absorbed in the course of involution, in the majority of instances it is more than likely that these tumors not only continue to exist, but begin to grow anew after involution has been completed.

Time will not permit me to dwell upon the serious dangers that may arise when uterine fibroids complicate gestation, and for the same reason it is impossible to consider the treatment. It is the earnest hope of the writer that discussion will bring out the most important points with regard to both.

TEMPORARY URETERO-VAGINAL FISTULA AFTER PANHYSTERECTOMY FOR FIBROID OF THE UTERUS.

BY

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THE interest of the case I wish to present to the Association lies in its postoperative complication and its satisfactory outcome. Mrs. T., 48 years old, mother of six children, came to me fifteen months ago, stating that she had a fibroid of the uterus. She said she had known of its existence for ten years, the tumor having been discovered by the physician who attended her at her last confinement. Since a sister had died after an operation of this kind, she had refused operation. The history of the case revealed nothing of great import, except that bleeding from the uterus had been almost constant during the past year—having been, previously, of a profuse nature and of ten days' to two weeks' duration. The monthly character had been fairly observed until the past year. Pain had been and was moderate. Patient felt extremely exhausted and was highly anemic.

Upon abdominal examination, a firm, round tumor could be felt, reaching up to the middle between the umbilicus and the xiphoid process, in size about equal to the uterus in the eighth month of pregnancy. Uterine bruit was distinctly audible over most parts of the tumor. On combined vagino-abdominal examination, the tumor could be felt dipping deep down into the pelvis, particularly so on the left side. The body of the uterus could not be outlined, the neck having entirely disappeared. The tumor could easily be diagnosticated as a fibroid of the uterus. The examination of the heart, lungs, kidneys and blood being satisfactory, except for a rather low hemoglobin percentage (40 per cent.), the operation was urged and accepted.

Until about the time of this operation, that is, about fifteen months ago, whenever, after abdominal section, the location of the fibroid permitted, I preferred supravaginal amputation of the uterus to panhysterectomy. Late reports on the question of

panhysterectomy versus supravaginal amputation of the uterus, as well as recent experiences of my own, have caused me to change my former opinion and to perform, in all cases, total hysterectomy. The sole contraindication is such extreme weakness of the patient, that even the moderate increase in time required by this operation might prove hazardous.

The main reason for such a change of mind is, that there is practically no longer any difference in the mortality of the total and the supravaginal removal of the uterus. The slight increase in time and difficulty of the total excision should not prevent its general acceptance, if thereby better permanent results are secured. And there is no doubt that such results would be obtained. After supravaginal amputation it is by no means a rare occurrence for malignant trouble to develop in the stump of the cervix. I agree with Winter, Bovée, and others, that most of the stump carcinomata are the result of malignant degeneration of existing fibroids, or of simultaneous independent carcinomatous degeneration of the corpus uteri, without malignant change in the fibroids themselves. Also, for such carcinomata of the cervical stump as may appear several years after supravaginal amputation, and are, in my belief, absolutely independent diseases, panhysterectomy removes all possibility.

There is no doubt that early symptoms of malignant degeneration of fibroids or of the mucous membrane of a fibroid uterus cannot be determined by clinical symptoms, or even by manual exploration, or thorough curetting. The uterine cavity of a fibroid uterus is too large and irregular to allow of such accuracy of either method as is necessary for a decision. In addition, there is the danger of infection from these procedures, if supravaginal amputation follows. Even the introduction of a sound might prove a source of such danger.

In my opinion, then, total extirpation of the uterus, in our days of perfected technique, should be the operation of choice. Those operators who do not think the danger of malignant degeneration so great as to warrant giving up supravaginal amputation, with or without leaving a small part of the mucous membrane of the corpus uteri—those I would advise to at least carefully examine the specimen removed, before sewing up the abdomen, and so save themselves a disagreeable surprise after completion of the operation. In case malignant degeneration is found, the danger of infection has, of course, been greatly increased. (If we consider what difficulties the treatment of the stump of the cervix in my-

omectomy presented, and how, for several decades, the best surgeons of the world strove to develop a safe method for its treatment, we find it hard to understand at the present day, why the advice of Bardenheuer, as early as 1881, to extirpate the cervix with the uterus, was not followed more generally. The only reason I can see is that the experience with Freund's panhysterectomy for carcinoma uteri had been so very unfavorable. The operators apparently lacked courage for its trial in fibroid operations. If in this class of cases further attempts had been made, I am sure panhysterectomy had become more popular and many modifications of the treatment of the cervical stump unnecessary—I may be permitted to state here that conservatism in large fibroid operations is not often justified, because of the usual multiplicity of the fibroids; it is almost inevitable that small nuclei remain, which frequently grow then with rather increased activity. However, the wish of the patient, not to be deprived of the menstrual habitus and of the possibility of bearing children, might induce the operator to save the uterus. But pregnancy after removal of fibroids of the size of a child's head or larger is rare and the danger of pregnancy and confinement in a uterus badly scarred in several places is to be considered.

To proceed with the case after the digression—I performed panhysterectomy with removal of tubes and ovaries in the typical way, keeping very close to the tumor and uterus. In this way, as is well known, injury to the bladder, ureter, and rectum is surely and simply avoided. In this particular, myoma operations differ from carcinoma operations, in which, on the contrary, we must keep far away from the uterus and must sacrifice a good part of the vagina. The operation was simple, and even on the left side of the pelvis, where the tumor dipped far down between rectum and vagina, it was not necessary to raise the ureter from its bed and to injure the ureterovaginal vascular network, the result of which is a frequent cause for necrosis of the ureter. (We have learned this lesson from operations for cancer of the uterus.) After complete stoppage of the hemorrhage, I introduced a small gauze drain into the vagina, and sewed the peritoneum of the bladder to the peritoneum of the Douglas pouch, and then sewed the rest of the peritoneum in the usual linear manner. As a rule, I first sew the peritoneum of the bladder to the anterior vaginal wall, and the peritoneum of the Douglas pouch to the posterior wall of the vagina, and then continue as above. In this case, on account of the highly anemic condition of the patient before the

operation, I did not wish to prolong the work even for the very short time required for this additional sewing.

Everything went favorably until the tenth day after the operation, when the nurse reported that the patient, who had been able to pass her urine normally, was continually wet, though from time to time urine was passed in the natural way. The quantity of the normally passed urine, which had averaged fifty ounces in twenty-four hours, dropped to twenty-five to thirty ounces. Upon vaginal examination, I found a constant dripping of urine from the vagina. I could not, however, discover the location of a fistula. I wish to state here that the discovery of a fistula in the left or right fornix is by no means a proof that the ureter of the same side is injured, since the injured ureter might be pulled entirely to the opposite side by parametrian scar formation. The complete filling of the bladder with permanganate solution showed that there was no incontinence of the bladder. There was no doubt, therefore, that a ureterovaginal fistula existed. In order to find the ureteral orifices in the bladder more easily, I injected 4 c.cm. of a 4 per cent. solution of indigocarmine (Brückner, Lampe & Co.) into the gluteal region, according to the advice of Völker and Joseph. Cystoscopic examination about twenty minutes after this injection revealed the right ureteral opening very plainly by a greenish-bluish discharge. The left ureteral opening could at first not be discovered, but then I recognized a movement of the ureter similar to the contraction of the ureter in discharging urine. But no fluid came from the opening! This symptom, fittingly called by Viertel "Leergehen" of the ureter, was very evident. Its presence, depending upon contraction of the ureter, proved that the peristaltic movement of the ureter continued to the bladder, and that, therefore, there was no complete interruption of the continuity of the ureter, but only an opening in the wall.

I lay special stress on this phenomenon, since, in cases of evident ureterovaginal fistula after operation, it decides with which of the two conditions we have to deal. The differential diagnosis is of importance, since we know that lateral defects of the ureter frequently, even usually, heal of their own accord in about four to six weeks; complete severing of the ureter, as is produced by section or ligation, never heals spontaneously. In the case under consideration there was no marked decrease of urine from the vagina for about two weeks after the development of the fistula, that is, three and a half weeks from the date of the operation. I

explained to the patient the exact nature of her condition, and told her that I trusted the fistula would be a temporary one and would probably close in from two to four weeks. The patient, feeling otherwise well, decided to return home, and two weeks later reported that the quantity of urine coming from the vagina was decidedly less, the amount passed from the bladder increasing. One week later she wrote that no urine escaped from the vagina and that she passed between fifty and sixty ounces of urine.

One of the main reasons for reporting this case is to warn against premature operation for postoperative ureterovaginal fistula. Except in such cases in which there is a certainty of complete interruption of the continuity and in which, therefore, spontaneous healing is impossible—only after nature has had her chance of at least six weeks, should we interfere and perform a secondary operation, reimplantation of the ureter into the bladder, or even nephrectomy.

I examined the patient again only a few months ago and convinced myself that she was absolutely well. Both ureters discharged urine into the bladder; the ureteral catheter entered the left ureter without difficulty. The condition of the pelvis is perfect, not a trace of an exudate being noticeable. I am not in a position to state the exact cause for this ureterovaginal fistula. It did not appear until the tenth day. At the operation, as stated before, I carefully avoided disturbing the ureter in its nourishment. However, a slight mechanical insult to the ureter cannot be excluded. This, in a patient so extremely anemic, may have caused the fistula through secondary necrosis.

To summarize:

1—Panhysterectomy is preferable to supravaginal amputation as the radical operation for fibroid of the uterus.

2—Leergehen (empty contraction) of the ureter is an important point for differential diagnosis between a lateral opening and complete interruption of the continuity of the ureter in ureterovaginal fistula.

3—Operative interference in ureterovaginal fistula, where there is only a lateral opening in the ureteral wall, is not advisable until there has been a chance for spontaneous healing.

FIBROID OPERATIONS DURING PREGNANCY.

BY

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FIVE years ago I had the pleasure of reading before this Association a paper on "Celiotomy During Pregnancy," in which I reported twenty-one cases operated upon for various conditions, as tumors, hernia, or appendicitis. Among these were four cases of fibroids. Since then I have had three other cases.

The cases previously reported (AMERICAN JOURNAL OF OBSTETRICS, No. 3, 1903) are in brief as follows:

Mrs. H. F.; pregnancy of three months complicated by a long-pedicled fibroid; myomectomy; uncompleted recovery; delivery at term.

Mrs. P.; age 27; physician's wife; seven years married; no previous pregnancy; anxious to have children; pregnant five months; multiple fibroids; myomectomy; premature delivery at seven months.

Miss C. H.; age 25; four months pregnant; fibroid 2x5 inches in size; myomectomy; further course of pregnancy not known.

Mrs. G. K.; age 34; pregnant five months; myomectomy; much pain during third night; aborted with much hemorrhage, collapse before nurse noticed anything being wrong; died from hemorrhage.

The three new cases are as follows:

Mrs. S. H.; age 42; mother of three children; has been menstruating profusely for some years; is now pregnant four months and has a number of fibroids, one between the uterus and the bladder, which would interfere with labor. Operation October 27, 1903; three fibroids removed; one, situated near the internal os, was 1 inch by 1½ inches in size, and another, situated near the right horn, was deeply interstitial. The tumors were enucleated and the uterine wounds carefully closed. She was taken with labor pains the seventh day and aborted on the eighth. She made a good recovery.

Mrs. A. F.: age 31: no children; always had profuse and irregular menstruation. She had a number of hard tumors. I did not

suspect pregnancy. Operated June 20, 1905. When the abdomen was opened and the uterus exposed I found that she was pregnant. Removed four fibroid tumors, one near the internal os, two at the fundus, one in the cul-de-sac; two more were so deeply seated that I suspected that I would go through into the uterine cavity, but the tumors did not quite reach to the mucous membrane. The wounds were carefully closed in the usual manner. The woman aborted on the seventh day; otherwise she made a smooth recovery.

Mrs. F. D.; age 42; married ten years; first pregnancy; menstruation had been rather profuse till four months ago, when it ceased; since then there has been a rapid increase in size of the abdomen. The irregular nodular uterus reached to the umbilicus. A tumor could be felt in the cul-de-sac, making it difficult to reach the cervix, which was pushed up nearly to the symphysis. There was also a tumor in the left broad ligament. I made a diagnosis of pregnancy with multiple fibroids. I suggested abdominal hysterectomy, as it would probably be impossible to do a myomectomy. Operation August 15, 1905. On opening the abdomen the diagnosis and the prognosis were verified. It was impossible to save the uterus. I therefore enucleated the fibroid of the broad ligament and performed a saprovaginal hysterectomy. Recovery was rapid.

These seven cases show that operations of this kind can be performed with benefit, although sometimes an abortion follows. It is far safer to operate than to allow such tumors to rapidly increase in size and then interfere with labor. We have all had lamentable cases of the latter kind accompanied by a large mortality.

In my seven fibroid operations during pregnancy there was one death, but this was preventable, and should hardly be charged directly to the operation itself.

The main points I wish to impress are: First, that myomectomy is indicated in certain cases; second, that operation is necessary in all cases of fibroid in the lower uterine segment or in the broad ligament; third, that, as a rule, fibroids at the fundus need not be interfered with during pregnancy.

DISCUSSION.

Discussion on the papers of Drs. West, Howitt, Zinke, Jonas, and Carstens.

DR. EDWARD J. ILL, Newark.—Through the kindness of our President, Dr. Morris, I have been permitted to read to you the history of a case, the specimen of which you saw on the table.

DR. RUFUS B. HALL, Cincinnati.—There are so many points to be discussed in connection with this array of papers that one cannot hope to mention all of them in the short time allotted to him, and, I presume, each speaker will pick out the points he wants to discuss.

I quite agree with the first essayist (Dr. West) as to the line of demarkation of operations for fibroid tumors of the uterus. I think, however, he misinterpreted the ideas of the authors from whose papers he quoted. We are accustomed to saying things on our feet that probably ought to be modified a little. I cannot conceive of a man deliberately doing a hysterectomy on a woman who has a few small fibroids in her uterus when they are not causing any pathologic condition or symptoms calling for relief. A large number of women have fibroids without giving any disturbance. This is well known to every operator. I cannot see how a man like Dr. Noble, who is quoted by the essayist, would say that every women is safer to have her uterus removed or a fibroid removed the moment it is diagnosed. I am not willing to advise that. When a fibroid is large enough to cause pressure symptoms or it is large enough to make a woman's condition uncomfortable or dangerous from the pressure; when you cannot make her comfortable by ordinary means of treatment or when there are secondary changes in the tumor, then operation should be considered and freely discussed. I have examined many women and have found small fibroids, but would not think of telling them of their presence, and I presume every other operator does the same. I would disagree with those men who say they would operate for the removal of fibroid tumors the moment they are discovered. I would not. I think we should have a definite reason when we advise operation for the removal of fibroid tumors. When we advise myomectomy or hysterectomy, we should have a reason for it other than the presence of a small fibroid.

The paper dealing with postperitoneal fibroids was interesting to me. Those of us who have had similar tumors to deal with can say that not always can we get through with the operation as easily and as nicely as in the cases reported by the essayist. I have operated on quite a number of postperitoneal fibroids, two of which I recall since listening to this paper. In one the tumor weighed sixteen pounds, and I supposed it was a fibroid. At any rate, we may call it a fibroid for the present. In this case I did

not have an easy time in removing it; neither did the patient. Before I got through with the operation I found it was not a fibroid, but a sarcoma, as subsequently confirmed by the pathologist. But to all appearances to the naked eye it was a postperitoneal fibroid. This patient was operated on ten months ago. She is still alive. She has not had any recurrence, but will probably have very soon.

Another case of postperitoneal fibroid was operated on by me several years ago, and the upper part of it was easily enucleated. It presented at the vulva, filling the pelvis full and lifting the uterus up. I believed that it was a fibroid when I began the operation. The whole lower portion of it was densely fixed, and it was with great difficulty that it could be liberated, and not until after a good deal of hemorrhage. This proved to be a sarcoma also, as in the first case.

These cases are interesing. The majority of them, where they are malignant, can be easily enucleated, and without unusual hemorrhage, as a rule. In most of the cases of this kind that I have operated on it has been easy to perform the operation, and apparently with less damage to the patient, by doing a hysterectomy—that is, cutting off the uterus and leaving the cervix.

As to operation for fibroids complicating pregnancy, I think the summary given by Dr. Carstens covers the whole topic in a nutshell. We know the dangers and complications that are likely to arise in a pregnant uterus with fibroids present, and I believe the best interest of the patient would be conserved if we would make the working rule like the one suggested by him. This rule I formulated in a paper written on this subject seven or eight years ago. If a tumor is situated in the lower segment of the uterus, and is large enough to block up the passage, so that delivery cannot be effected, it should be removed. These patients ought not to be permitted to go on to full maturity unless we contemplate doing a Porro and saving the child. But in many of these patients suffering is very great. If there are old adhesions, by the time they are four or five months advanced in gestation, suffering is so great that they demand relief, and we cannot postpone operation any longer. I have seen a number of cases in which I have been obliged to interfere. The question of whether we are going to save the uterus or not must be decided at the time of the operation. When the tumor is in the upper segment of the uterus, and does not interfere with or block the passage of the child, the case ought to be left to nature, to be delivered at term in the natural way. The risk is less to the patient. The risk of hemorrhage after delivery and of sepsis following is less to the patient, and you will probably get a living child.

As to the question of myomectomy, in case there are a number of tumors in the uterus, in a pregnant patient, I think the chances are that we will get just what the essayist got in almost all instances—namely, a miscarriage following operation. There are

instances in which we will be able to save the fetus; the woman will go on to full term if there is a small tumor, but if there is a large tumor or a number of tumors, as in his case, the patient usually aborts.

Dr. James F. W. Ross, Toronto.—I am sorry that our time is somewhat limited in discussing this subject, which I regard as one of the most important that has come before this meeting. There can be no doubt that the most terrible thing that can happen to any woman is for her to develop a fibroid tumor. Let us take, for instance, a daughter of sixteen, eighteen, or twenty, of any member of this Association, and find suddenly that she has developed a fibroid tumor of the uterus; it is a terrible heartbreak to us. When a woman has a fibroid, what we want to do is to deal with her as moderately as possible, to conserve her for the great object of her being—that is, for child-bearing in the later years. I consider that in connection with pregnancy she should be consulted before a surgeon undertakes to do a hysterectomy or oophorectomy. She should have laid before her a full statement of the case, because we know that a Porro-Cesarean section, or Cesarean section, may be done in the latter months successfully and satisfactorily. We have all done it, and saved both mother and child. When a young woman, with a small fibroid, consults me, I ask her the question as to whether she is engaged or not. If she is, I advise her to marry, with the hope that she will become pregnant, and with the first pregnancy, if there are likely to be difficulties and the tumor is likely to be damaged as a consequence of the pregnancy, I believe the production of a miscarriage in the first pregnancy will do her a great deal of good. After miscarriage I have seen such tumors disappear and the woman subsequently bear a living child.

I will instance the case of a woman, married at forty-five, a South African missionary, who was sent to me through the late Dr. J. E. Graham, with three lumps in the uterus, and the fetus evidently between them. I came to the conclusion that it was impossible to let the pregnancy go on and brought about a miscarriage, and told her after recovery I would take out the whole thing. She miscarried; she had little difficulty with the placenta. She drifted away. She went to faith-cure people. The tumors disappeared; she subsequently became pregnant and bore a living child. This was the first lesson I had with fibroid tumors complicating pregnancy. I have followed it up in other cases, who had tumors that disappeared after pregnancy was over. These patients do not always get along so nicely.

Last summer a young negress was brought to my clinic six weeks pregnant, with a fibroid tumor. She looked like a typhoid fever patient. I opened the abdomen, did a hysterectomy, and removed the tumor, with a six months' pregnancy. The tumor was a myoma, quite black as a consequence of gangrene. This woman had no chance without operation. She waited until this

condition had occurred, and with early operation her life was saved.

The point, then, we have to consider is, When shall we produce a miscarriage, or when shall we go on and do a Porro or Cesarean section? When shall we do a myomectomy in the presence of pregnancy? I do not believe in doing myomectomy when a woman is pregnant. I believe in these cases that a miscarriage, if possible, should be induced. If the woman is particularly anxious to have a child, and she has gone on to about the third or fourth month before being seen, under such circumstances I advise her to wait and go according to what I find in the later months. In this connection, I recall a case seen by me at four months, after a Porro-Cesarean section had been advised, but who was carried along to full time, and delivery was effected without difficulty. Many of these women will be delivered readily when we think there will be difficulty.

As to cancer occurring if these tumors are left, I will say that my experience has been that cancer occurs in epithelial structures, and has nothing whatever to do with the presence of a fibroid or fibroids. If we argue that because every woman who has a fibroid should have it removed for fear of cancerous disease, then we would have to admit that every woman would be safer without a uterus, and the argument could be carried further to include other organs.

One of the essayists mentioned total hysterectomy for fibroid. I thought that question has been pretty definitely settled by operators. I have given up panhysterectomy as a rule in these cases. I prefer other operations where the vagina is left undisturbed, and that is important with a married woman. It is better to leave the vagina undisturbed. When during operation the cervix is left, it is easier to avoid injury to the ureter.

In the cases of sarcomatous degeneration of fibroid tumors removed by supravaginal amputation the disease has not recurred in the cervix but in the peritoneum, in my experience.

Dr. John A. Lyons, Chicago.—I want to mention one case that occurred in my own experience which simulated one of the cases reported by Dr. Carstens, where the woman died from hemorrhage.

Fifteen years ago, in connection with my obstetric work, I delivered a placenta and performed a Credé to contract the uterus, but could not get it contracted, only in a kind of hour-glass form, and the hemorrhage kept up. I made up my mind that the placenta had been pretty well delivered, and I could not understand why there was so much hemorrhage. I told the nurse to perform Credé manipulations, and in the meantime I washed my hands and arms, then went into the uterine cavity and delivered a submucous fibroid as large as half the size of a fetal head. The uterus began to contract immediately without any ill results whatever, and the woman has borne several children since, so that had I not been present to have watched the uterus, this woman would

have died from hemorrhage without either the discovery of the submucous fibroid or its removal. Had the tumor not been removed immediately, I am satisfied she would have died from hemorrhage.

DR. HERMAN E. HAYD, Buffalo.—All of the members of the Association have already written papers on this interesting subject, and we have threshed it out pretty well, but, as Dr. Ross has remarked, the subject is so important that we ought to continue to discuss it probably at every one of our meetings, and very likely we will continue to do so.

So far as myomectomy is concerned, in my experience it is often a very easy and simple operation. When the tumor has a long and thin pedicle, it can be removed without the least difficulty and without any danger. Moreover, it is surprising to see how easily tumors can be shelled out even where they have no pedicle, and how much traumatism the uterus will stand and yet practically be left as a good functionating organ. Nevertheless, it requires a great amount of judgment and experience to know when myomectomy should be performed in preference to a hysterectomy, because it is practically impossible for us to declare, even with the uterus in hand, whether in the structure of the uterus there are not imbedded numerous smaller fibroids. Therefore, the operation of myomectomy, in my judgment, should be seldom done. Twice I have been compelled to operate a second time upon women in whom I thought I had left a normal uterus, and inside of two years these uteri grew to about the size of a turnip.

So far as supravaginal hysterectomy and panhysterectomy are concerned, I read a paper on this subject before this Association five or six years ago, and I can thoroughly agree with both Drs. Ross and Hall. Supravaginal hysterectomy has a mortality of at least five per cent. less than panhysterectomy, and the statistics I am giving you represent the work of a number of the best operators in the world. Supravaginal hysterectomy has a mortality of from four to five per cent. in the hands of good operators; in the hands of the same operators panhysterectomy has a mortality of at least nine to ten per cent. The objections to leaving the cervix are that malignancy occurs in the cervix; that only happens in about one-half of one per cent. If it only happens in one-half of one per cent. and the dangers of panhysterectomy are five per cent. greater than from supravaginal hysterectomy, then it seems to me that supravaginal hysterectomy should nearly always be the operation of choice. If, however, we have a cervix that is badly torn, badly ulcerated, then let us by all means do a panhysterectomy. We have, therefore, definite cases in which supravaginal hysterectomy should be done, and a definite class of cases where panhysterectomy should be done. I do not believe that every uterus should be sacrificed because it has a fibroid in it, even if it be pregnant. Dr. Ill brought that out some years ago in a paper read before this Association, and the result of

his experience has also been my own, that if the fibroid is not located too low down in the pelvis, as the uterus grows it lifts the fibroid up out of the pelvic canal and labor is not in any way obstructed. It would not do to make that statement in reference to all pregnant uteri, because often the pressure and the traumatism of pregnancy would set up suppuration and perhaps maceration of the tumor. Occasionally myomectomy can be performed in a case of pregnant uterus without producing a miscarriage. Too often, however, it does produce a miscarriage. Occasionally a woman can be delivered with a myoma in the uterus without any operation. Moreover, I do not believe it is right (and we have taken this position every year) that we should say that every woman afflicted with a fibroid tumor is so mortally wounded that she should be operated on. It is not so. A great many fibroid tumors remain practically harmless, and may do so indefinitely. It is true, occasionally some of them undergo malignant degeneration, but not a large percentage of them.

Noble has done a great deal of work on this subject, so has Frederick, but there are not more than five per cent. of the cases of fibroid tumor that ever undergo malignant degeneration. Fortunately for womankind, fibroid tumors are seen very seldom in young women. It seems to me, that is one of the penalties that women have to suffer who do not marry. We see them most frequently in old maids, in women who have been sterile. Fibroid tumors are not common in child-bearing women. They are more common in women who have not borne children or who have borne few children. However, if I had a patient, a young unmarried woman, who had a small fibroid tumor, I should give her the advice that Dr. Ross did his patient. If she is engaged, if she has the prospect of matrimony, I would advise her to get married in the hope that prospective maternity would also cure her of the fibroid tumor. It might make her worse, but it would be plainly wiser then to interfere and remove it when it was producing symptoms.

Dr. Charles L. Bonifield, Cincinnati.—There are two or three points I wish to speak of regarding the subject of fibroids complicating pregnancy. Two years ago I read a paper before the Ohio State Medical Association on this subject, in which I reported five cases.

The first case I saw was somewhat similar to the one mentioned by Dr. Lyons. The woman had been delivered and I was asked to see the case in consultation because it was thought the uterus was involved. When I arrived, however, I found that she had expelled a fibroid nearly as large as a cocoanut. The uterus was not inverted. The pedicle was snipped off with a pair of scissors and the woman made a good recovery. This case shows how a large submucous fibroid may exist in the uterus and pregnancy not be interrupted and delivery not interfered with.

The second case was seen at Christ's Hospital. The woman

was three or four months pregnant, and was trying to have a miscarriage. The fibroid so filled the pelvis that it could not be expelled. We did a hysterectomy, removing the fibroid and uterus, with dead ovum.

A third case was one in which there was a large fibroid growing from the posterior wall of the cervix, and the woman, when I saw her, was in labor at full term. We did a Cesarean section in this case, saved the mother and child. She was comparatively a young woman. Enucleation of the fibroid seemed possible, and we had some hopes that involution would have some effect on the fibroid, and so we left it. But, unfortunately, within a year the fibroid increased in size, so that she was unable to pass urine. I was called again in haste, opened the abdomen of this woman, and did a hysterectomy.

The next case was one in which the tumor was similar to that described by Dr. Howitt. The woman came to me when she was about four months pregnant. I had to take the word of her family physician that she was pregnant, because I could not make a diagnosis of that condition. The cervix was lifted clear out of the pelvis, so that it could not be reached. The tumor extended down in the right broad ligament nearly to the vulvar orifice, and it was making such tremendous pressure on the blood vessels of the right leg that this limb was swollen to twice its normal size. Under these circumstances hysterectomy was advised and done. There was considerable loss of blood. The operation was difficult, and in enucleating this tumor from without the pelvic cavity I accidentally wounded the rectum behind the vagina. I closed this with sutures, and she got well without a fecal fistula.

Such, in brief, has been my experience with fibroids complicating pregnancy. It goes to bear out the statements made by Dr. Carstens in the summary of his paper.

There are two or three other things I wish to speak of, one of which has been referred to by some of the speakers, and that is, supravaginal hysterectomy versus panhysterectomy. I have no doubt that what Dr. Hayd has said is true. It is a lesser operation, and nearly everyone can do it in less time than panhysterectomy. It can be done in five minutes' less time than the other operation. Dr. Morris, our President, told us last night how much five minutes meant in an abdominal operation. That is one reason why the operation should be done. It leaves the vagina in a much better place. Practically in every case of hysterectomy I do for fibroid, I stitch the round ligaments to the stump of the cervix. This holds the cervix up, and keeps the vagina at its normal length, and for all material purposes the vagina is as good as if the patient had never had a fibroid.

The question of myomectomy versus hysterectomy has been pretty well threshed out. Myomectomy should be limited to those cases in which the fibroids are not numerous, and in which they can be easily enucleated, because, as Dr. Hayd has pointed out, we

are never sure that we have removed all fibroids, and if we remove a large one and leave small ones, the increased blood supply of the small ones will cause them to grow rapidly, and it will be necessary to do a second operation in a few months or a year.

I cannot agree with the advice which Dr. Ross would give to a young lady with a fibroid tumor. I believe it is a calamity for any woman who has a fibroid to become pregnant. I think it is an accident that should not be allowed to happen, if it can be prevented. Where there is one case in which the tumor will shrink after pregnancy, there are many in which the increased blood supply necessary to the carrying on of the pregnancy will cause the fibroid to grow materially, and there is no commensurate decrease in the size of the tumor when pregnancy has been ended. Therefore, if a young woman came to me with a fibroid and I found that she was going to be married, my advice would be for her to have the abdomen opened and see if the tumor could not be enucleated, and then she could marry and become pregnant with perfect safety. Of course, it is unnecessary to remove every fibroid we see. Much depends on the age of the patient. I take it that that is the most important thing in a young lady to decide—whether a fibroid, aside from urgent symptoms, should be removed or not. If we have a young woman of twenty-five, who menstruates regularly or profusely long before the menopause, that tumor will have, in all human probability, attained a size sufficient to necessitate its removal. Why not, therefore, remove it at a time when it can be done easily, and when other pelvic organs can be conserved? Why wait until degeneration of the ovaries has taken place, which very, very frequently occurs where a uterus contains fibroids of large size, or until this tumor has become so large that it is impossible to remove it without doing a hysterectomy? This is the most important thing in deciding what to do, aside from the pressure symptoms and hemorrhage.

Dr. West (closing the discussion on his part).—I was very sorry that I was unable to finish the most important part of my paper dealing with the indications for hysterectomy. I took the liberty of bringing this subject before the Association because in the East the discussion of operations for fibroid tumors has in the last year taken a decidedly new turn, and a very important factor in this discussion I believe to be a paper by Dr. Noble, because he has published a very extensive article in serial form in the *Journal of the American Medical Association,* in which he tries to establish the view that nearly all of these fibroid tumors should be operated on immediately. That is the reason I brought this subject before you. A great many young practitioners read these papers, and are tempted to adopt these views. I have patients sent to me at the Post-Graduate Hospital who do not need operations for the removal of these tumors, and I am happy to see that this Association in the main agrees with the views

which I have presented in my paper in regard to operation for the removal of these growths.

There is another reason why I presented this paper, and that is, I notice many men, especially those who are not specialists, attempt to go by general rules in these cases. That is a great mistake. We ought to deal with these cases individually. In the case of a young woman, twenty-five years of age, who comes to us with a fibroid tumor, special study should be given to that particular case. If I could operate on that woman and remove the fibroid tumor, even if there was a chance for other tumors to grow, I would remove the tumor, and if other tumors grew, and I could not remove them separately, I would do a hysterectomy when the symptoms should demand it. Each individual case should be made a study, and we as specialists should recognize certain symptoms and indications for operation, and contra-indications. A positive indication for operation, even where the tumor is not large, is in a woman who has passed the menopause, who has hemorrhage, and pain from the tumor. Here we have a strong indication of the development of malignant disease. It is a positive indication for operation.

There are other means of diagnosis of the malignancy which I have not heard mentioned, but which most of you use. For instance, dilatation of the uterus and examining its interior; also the consideration of the question of flow between periods, which has an important bearing. Then, too, submucous fibroids are apt to undergo malignant degeneration if left. When we go to the operating room we have sometimes to determine rapidly whether the patient should be operated on conservatively by doing a myomectomy or not. I have split the uterus before me and have examined it to enable me to reach a conclusion as to the best course to pursue, and I must say that has helped me in some cases. In one case I began with a myomectomy and finished up by doing a hysterectomy, because I believed malignant disease had developed. This proved to be true. In another class of cases, when we open the abdomen and look at the tumor we may find it is fibrocystic, and these tumors are more apt to become malignant. We should consider all factors in a given case, in order to determine whether to do a complete hysterectomy or supravaginal hysterectomy.

Dr. Howitt (closing on his part).—Dr. Hall has referred to the difficulty which he has encountered in the enucleation of the class of tumors to which I have called your attention. The main thing in the successful removal of an external intraligamentary myoma is to make certain that you have reached the surface of its capsule before you attempt to enucleate, otherwise we are sure to get into trouble.

I agree with the view expressed by Dr. Ross in regard to the disappearance of small fibroids in young women after labor, but whether it is wise to follow the advice which he has given I am not in a position to express an opinion. It is my firm belief

that, if a young woman married at sixteen or seventeen, we would have no fibroids, for are they not a protest of nature against some features of our civilization?

DR. ZINKE (closing the discussion on his part).—I do not feel the necessity of making any further remarks after this very extensive discussion. I agree in the main with what has been said.

DR. JONAS (closing the discussion on his part).—I pointed out in my paper that those operators who wish to perform supravaginal amputation of the uterus as the radical operation for the removal of fibroids, should in all cases, before closing the abdomen, cut open their specimens and examine them carefully. I recall cases in which, after the abdomen had been closed completely, the tumor was found to be malignant. Such operations are, of course, failures. In many cases in which the tumors appear to be benign, we are not absolutely sure that they are so. Let us take the case mentioned by Dr. Hall, in which the tumor appeared to be absolutely benign to the naked eye, and yet, after turning it over to the pathologist, the diagnosis of sarcoma was made. If this tumor could have been diagnosed as malignant in the first place, a total hysterectomy should have been the operation of choice.

Dr. Hayd said that the mortality of supravaginal amputations is about five per cent., while that of total hysterectomy is much greater. That is doubtless true, but we must stop to consider that it took many years to bring the mortality of supravaginal amputation down to five per cent. It has taken several decades for the surgeons of this and other countries to accomplish this. I believe that if they had performed total hysterectomy for several decades the mortality now would be almost *nil,* with our improved technique. Doederlein, who reports several hundred cases of total hysterectomy for fibroid, has less than one per cent. mortality. The operation of total hysterectomy is especially urged if there are absolute indications. Those surgeons who operate whenever they find a tumor of the uterus will comparatively seldom have a recurrence. Now, as Dr. Hayd has pointed out, five per cent. of fibroids undergo malignant degeneration. So if we operate for strict indications, malignant disease of the cervix will become an important factor which must be considered, not to speak of the independent carcinomatous change of the cervical stump. I think I can safely say that the operation for fibroids will gradually change to total hysterectomy, even though Dr. Ross seems to think that this question has been definitely settled.

So far as the shortening of the vagina is concerned, I tried to point out in my paper that in total hysterectomy for fibroids we do not need to disturb the vagina to any extent. We cut the vagina close to the uterus. In operating for carcinomatous conditions, it is necessary to sacrifice large parts of the vagina. In fibroid operations this is uncalled for. We get a good, firm linear scar in the vault of the vagina.

I am very glad to hear that Dr. Hayd agrees with me on the question that myomectomy is seldom justifiable. We can never be sure that we have removed all the foci.

So far as the mortality of total excision is concerned, I wish to make a comparison with that of the operation for carcinoma of the cervix. Every surgeon seemed enthusiastic about the good results—the good primary results—following operations for cancer of the neck of the uterus. But at present this view is changing. The primary results from vaginal removal of the uterus are excellent. The permanent results are almost *nil*. The removal of the uterus by the abdominal route was attended in the beginning by a large mortality. These results are becoming rapidly better, and the permanent results are improving in such a way that we may feel proud of this progress in surgery. The same thing obtains to a certain degree with regard to those operations for the removal of fibroids which we undertake for strict indications. If we take all fibroid operations into consideration, then the danger of malignant degeneration is not great. But if we operate for fibroids only for strict indications, the danger of malignant degeneration is to be taken into account. Another point in favor of the total hysterectomy for fibroids is the occasional occurrence of carcinoma of the corpus uteri. I have had two cases of that kind. It is evident, then, that many points argue for total hysterectomy. If, then, panhysterectomy would be performed as the routine operation for fibroids of the uterus, the primary results would soon be as good as those of supravaginal amputation and the permanent results, of course, better.

Dr. Carstens (closing the discussion).—I wish to say a few words with reference to the other papers that have been read.

With regard to Dr. Jonas's paper, there is a vast difference in the mortality of the operations that have been mentioned. Some fifteen years ago, when I performed perhaps more abdominal hysterectomies than I do now, I had a case near Lansing, Mich., in which I removed the uterus and left a large piece of the cervix. This woman afterward had a great deal of discharge from the degenerated mucous membrane of the cervix, and always blamed me for leaving in the cervix. I was unable to induce her family physician to curet the little stump of cervix thoroughly and cauterize it, which would have remedied the trouble. But the case taught me a lesson. I have made it a rule since then, that if a woman is old, has had children, and has had a lacerated cervix, and a degenerated mucous membrane of the cervix, I would remove the whole uterus. On the other hand, if the patient is a virgin, and has a normal and healthy cervix, I can do the operation more quickly and with less danger by simply doing a supravaginal hysterectomy. And I make that distinction. In many cases, if I get the patients early, and the tumors are not too large, I do a vaginal hysterectomy, particularly in women who have borne children, and where the vagina is large and patulous. I

take out the neck of the uterus in these cases, and that coincides with what Dr. Jonas has said. I believe we should judge each case by itself.

I agree with Dr. West in some respects, while in others I disagree with him. It is all right for us among ourselves to discuss this question from various standpoints, and say we can do this and we can do that, but we have got to do more. We are teachers, and can we afford to go out and say that the right thing to do is to let these fibroid tumors alone unless they give very severe symptoms? Patients with appendicitis are recommended to stay in bed, and the practitioner instructed to apply some ice and to jog the patients along, and they would probably be all right. But such teaching has been the cause of a great mortality. The same thing may be said with regard to fibroids of the uterus. If it is known that fibroids are benign, and there is not much danger of these tumors undergoing malignant degeneration, or that they do not cause much trouble, the result would be that every practitioner would jog these women along and treat them until they are beyond the reach of surgery to benefit them, and the mortality from these operations in the future would be much greater than it is now. So that I think we have to be very careful as members of this Association about promulgating any such doctrine. While I agree with some of the speakers that some fibroid tumors do not cause much trouble, still there is great anxiety and fear on the part of those women who have them, and they would be greatly relieved of this distress of mind if the tumors were removed. As a result of the long-continued growth of a fibroid, it is claimed that there is fatty degeneration of the heart; the vitality of the patient gets lowered, and a woman, who would recover from an attack of pneumonia, an attack of typhoid fever, or any other intercurrent disease, if she has been in ordinary health, dies because the vitality of her system has been lowered as the result of the fibroid tumor she has. All things considered, anything that lowers the vitality; anything that depresses the nervous system, that makes a woman worry and become anxious about herself; anything that lessens the opsonic index, ought, on general principles, to be removed. All fibroid tumors should be removed in order to relieve these women of the load they are carrying around.

INTRAABDOMINAL TORSION OF THE OMENTUM WITHOUT HERNIA.

BY

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IN 1882, Max Oberst[1] described the first observed case of any form of torsion of the omentum. From that time down to the end of 1904, Corner and Pinches[2] were able to find fifty-three reported instances of omental torsion, and their article undoubtedly stimulated operators to note and report such cases, as the literature upon the subject has become fairly voluminous since the date of their publication. Torsion of the omentum has been variously classified, but as the great majority of all cases are found to be associated with hernia, these classifications are not pertinent to the present discussion, excepting as they apply in ruling out certain cases which have been reported as clear instances of intraabdominal torsion. For our present purpose we may classify omental torsion under three heads:

1. Torsion with hernia, in which the omentum is in the hernial sac and there twisted, or both twisted in the sac and also in the abdomen, or adherent to the sac and rotated above it.

2. Torsion of the omentum in the abdomen, hernia also existing or having previously existed with no apparent present connection between omentum and sac.

3. Pure intraabdominal torsion, no history of hernia given, and none existing at the time of observation. The last class only is dealt with in this paper.

In 1904, Scudder[3] reported in full a case of total torsion of the great omentum, and says that after a complete search of all the literature upon the subject he is satisfied that but two cases of this form have been reported previously. The next year Corner and Pinches, in the article above referred to, describe six reported cases but leave out one which Scudder correctly accepts, making seven in all up to the end of 1904. As complete a search of the literature as possible reveals four more reported cases from that date down to the present time, and, including the case here reported, brings the total up to twelve instances. By a personal

reference to all but one of the original articles, I am satisfied that the following cases all belong to the class of pure intraabdominal torsion, no suspicion of hernia being present.

CASE I.—Eitels,[4] male, age 44, miner, sought relief because of ascites. He had been tapped four weeks previous to the operation but the fluid had returned. After tapping the second time a tumor could be made out in the median line of the abdomen of a doughy consistency, not painful to pressure. At operation the omentum was found rolled upward and inward. It was unrolled and returned to its normal position, after which the patient recovered and was well four years later. It was thought that pressure on the abdomen by a box which the patient habitually carried in his daily labor was responsible for the condition.

CASE II.—Noble,[5] female, age 24, with a gonorrheal history, had repeated attacks of pain in her stomach with nausea and vomiting. On this occasion the pain was so severe as to necessitate medical assistance. Her temperature was a trifle elevated; a mass could be palpated between the anterior superior iliac spine and the umbilicus. Diagnosis, appendicitis. She refused operation for six days, when the increasing severity of her symptoms led her to consent. Upon opening the abdomen, a mass two inches wide and five inches long, composed of a process of rotated omentum was found attached to the tip of the right tube. Here it was thought that the peristaltic movement of the intestines acting upon the omentum attached at both ends was the principal etiological factor.

CASE III.—Baldwin,[6] male, age 47, had suffered for two days from pain in the right iliac region, had nausea but no vomiting. There was tenderness over McBurney's point and rigidity over the right rectus. Diagnosis, appendicitis. At operation an obliterated appendix was found and a portion of twisted omentum the size of a fig with its pedicle rotated eight times upon itself. When unrolled this portion of omentum was the size of the hand.

CASE IV.—Scudder,[7] male, age 25, shoe shop employee, had been ill seven days with abdominal pain, first general, later localized on right side. Vomited the first day but not afterward. Rigidity of abdomen was confined to the right side, in which a mass of indefinite outline could be palpated, occupying the whole of the right iliac fossa. Mass dull to percussion, not markedly tender. Diagnosis, appendicitis. Operation showed a twisted omentum rotated several times upon itself with thrombosed veins. Appendix was edematous and its interior filled with

mucopurulent material. This case was presumed to have arisen primarily from circulatory disturbance in the omentum without adhesions or external cause.

CASE V.—Stewart,[8] male, age 35. Four days before operation the patient had an attack of severe abdominal pain with vomiting. Pain and vomiting persisted until operation. Temperature 101°, pulse 120. Right side of abdomen was rigid and the point of greatest tenderness was just at the outer border of the right rectus on a line with the umbilicus. Bowels were moving freely. Diagnosis, appendicitis. Appendix was removed and found to have three minute hemorrhagic spots under the mucosa, otherwise normal. Further search showed right lower corner of the omentum twisted upon itself once around. The mass thus formed was six inches long and three inches wide.

CASE VI.—Syme,[9] female, age 51. Ten days before admission slipped and fell; three days later had severe abdominal pain and a swelling appeared. No vomiting, temperature and pulse both normal. Examination showed a rounded tumor from 1½ inches below the costal margin extending down the right side to the iliac crest and inward to the umbilicus. It was movable and dull on percussion. The diagnosis was suppurating omental hydatid. Operation showed that the tumor was composed of omentum twisted several times upon itself. It was thought that as the mass was adherent to the intestines it might have been rolled up by peristaltic action.

CASE VII.—Corner and Pinches[10] give a case in Saint Thomas's Hospital reports which I have been unable to verify but of whose accuracy I have no doubt, after reading their very clear-cut classification.

CASE VIII.—Riedel,[11] female, age 38. A year previously, during pregnancy, had a feeling of pressure in lower abdomen as though she must force something back. Was delivered of a dead child at six months. After getting about again the pain was gone but the feeling of weight remained and became more marked until her present illness, which began with headache and malaise a few days after carrying a heavy load. Bowels moved, no vomiting, but pain in right side of abdomen. Examination showed nothing abnormal on the right side. On the left side above the pubes a large swelling was visible. By vagina the mass could be felt indefinitely attached to the uterus. Pulse and temperature normal. At operation a chronically inflamed appendix was removed and twisted omentum adherent to the mesentery of small

intestine, the uterus, and anterior pelvic wall. A small pedicle twisted in two places connected the rotated portion to the normal omentum.

CASE IX.—Riedel,[11] female, age 38. Onset with vomiting and no pain. Ten days later had first pain, was tender to superficial pressure with palpable resistance. Temperature 37.5°, pulse 102. Diagnosis, gall-bladder adhesions. At operation a twisted pedicle of omentum the thickness of a pencil was found with the distal portion of omentum the size of the hand adhering to the liver. Two finger breadths below the liver was the tip of the appendix, free but reddened and inflamed. Etiologically he considers that the tumor formation, with possibility of rotation on the one hand, or adhesion of the tip with clumping and subsequent rotation of the remainder of the omentum, plays the most important part.

CASE X.—Simon,[12] male, age 26. For ten days had frequent attacks of right-sided pain but was able to work. Two days later had complete obstipation with vomiting. Temperature 100.4°, pulse 100, resistance palpable over iliocecal region, entire right half of abdomen dull on percussion. Some tympany, abdomen not tender. Diagnosis, appendicitis. Upon operation a pedicle as thick as the thumb was found tightly attached to the colon. Appendix was adherent and was removed, but no evidence of inflammation in its interior.

CASE XI.—Cullen,[13] male, age 47, conductor. One day after putting a drunken passenger off his train, felt pain over appendical region. Six days later the temperature was 100.5°, pulse 100, leukocytosis 17,600, no mass, no rigidity. Diagnosis, appendicitis. Operation showed the appendix thick and adherent, and only after its removal was a mass discovered composed of rotated omentum with a pedicle 1 cm. thick attached to the junction of the ascending and transverse colon. This was becoming gangrenous and was removed.

CASE XII.—May 26, 1907, personal, F. B., male, age 21, brakeman. For a year this patient says that he has had considerable digestive disturbance, which he attributed to improper food, smoking to excess and drinking. A month ago he suffered an injury to one foot in a railroad accident, but received no abdominal hurt. Four days ago he was taken with an attack of severe epigastric pain, after which he vomited and had diarrhea, both pain and diarrhea having persisted until the present date, but there have been intermissions when he felt quite well. One

such intermission took place this morning, and he rode in from the country in an open carriage, the ride producing an immediate return of the pain, which was considerably increased in severity. He then first consulted his physician, who diagnosticated appendicitis and advised surgical consultation, remarking that the case had some rather peculiar features. Examination showed a very well developed, muscular young man, the countenance was anxious but not pinched, temperature 101°, pulse 116, chest negative, abdomen only a trifle distended and everywhere a little rigid. Cutaneous hyperesthesia not marked. Most acute tenderness just below and to the right of the umbilicus. The entire right side of the abdomen was dull on percussion and flat in the median line. There was an indefinite sense of resistance in the same locality, but no distinct mass could be felt. There was no hernia.

Notwithstanding the rather unusual features of the case, the diarrhea and the lack of localized rigidity, a diagnosis of probable appendicitis was made and the patient sent to the hospital. It was felt that there was no necessity for haste, that he might be in the declining stage, with some temporary discomfort produced by his ride; hence he was advised that an operation would be made in the morning if he was not materially better. Next morning the temperature was 100.4°, pulse 106, but he had passed a wretched night. The facial expression was decidedly worse, the abdomen being more distended. McBurney's incision was followed by a gush of a large quantity of bloody serum. The base of the appendix was readily found, but, in endeavoring to trace it a large mass became apparent toward the median line, with free intestine between it and the incision.

Not doubting that the median mass was a secondary abscess, a second incision was carefully made over its center, when a dark purple tumor was exposed, everywhere lightly adherent by its anterior surface to the abdominal wall. This was cautiously freed and found to consist of omental tissue, when its deeper attachments to the pelvis and adhesions to the intestines were broken up and the mass delivered through the wound. Only after its exposure in this way was the pedicle, about the size of the finger, brought to light. This was attached close up to the transverse colon and was twisted tightly five times around from left to right. Before ligating the omentum hard up against the colon, the tumor was partially untwisted, but immediately returned to its original shape while lying in the wound after the pedicle was cut, much as a piece of string or rope might do by its own elasticity. The

median incision was closed and the appendix, pointing upward and inward and closely adherent, was removed. There was considerable shock, but convalescence was perfectly smooth, both temperature and pulse being normal on the third day. The specimen as shown resembles the fresh specimen very closely, excepting that it has lost its original deep color, which was due to the presence of free blood in its meshes, and the thrombosed veins have shrunken considerably.

An analysis of eleven out of twelve cases here considered shows that the diagnosis of appendicitis was made seven times; in one there was no diagnosis, in one the decision lay between appendicitis and tubal disease, one case was regarded as gall-bladder adhesions, and one as suppurating hydatid of the omentum. No case was correctly diagnosticated. There were seven males and five females, and the ages ran from 21 to 51. The temperature in the acute cases showed a remarkable uniformity of from 100° to 101°. In five instances the entire omentum was involved, in five a portion only, and one was a case of accessory omentum. One case was chronic and ten acute, and in eight of the acute cases there was evidence of past or present appendiceal disease. Naturally the greatest interest centers about the cause and mechanism of omental torsion and its diagnosis, the first from an academic, the second from a practical standpoint. The three latest articles upon this subject are those of Smythe,[14] W. W. Richardson,[15] and Lejars,[16] and in all of them considerable attention is given to the question of diagnosis, while etiology is gone into very fully by both Richardson and Lejars.

Richardson thinks that matting of the free extremity of the omentum, making it resemble a ball, permits of its easy rotation, as does also the attachment of the tip. Forces acting in the abdomen, like peristalsis, and possibly automatic motion of the omentum may then cause rotation. Lejars also compares an omentum adherent by its tip to a triangular handkerchief fastened at two corners, allowing the third to rotate, and says that adhesions in intraabdominal torsion ally the cases to hernia in which torsion takes place. He also calls attention to tumors of the omentum which produce torsion, and particularly to tumors on one edge of the omentum.

Payr, quoted by Scudder, calls attention to the necessity for differentiating sharply between those causes which act externally and those which are due to conditions of growth and circulation, and especially mentions the possibility of twisting taking place

by the over full veins wrapping themselves, and incidentally the omentum, about the shorter but stiffer arteries. It is evident that four distinct theories have been propounded to explain omental torsion without hernia. These are: (1) Causes acting externally only, such as pressure analogous to the causes of torsion in omental hernia, ectopic testicle, etc. (2) Some internal force, such as intestinal peristalsis; or external force, such as pressure, whether exerted by the abdominal wall or upon it, serving to rotate an omentum whose tip is temporarily converted into a ball, which rotates much more readily than would the spread-out apron. (3) The same forces acting upon an omentum adherent at its tip. (4) Circulatory changes leading to twisting of the veins about the more resistant arteries.

The fact that in eight of ten acute cases there existed either old or recent appendicitis is fairly safe evidence that matting or clumping of the omentum might be presupposed, and that presumably upon one side. Following this, external pressure, peristaltic waves, even the possible automatic activities of the omentum itself are perfectly competent to start rotation, which when once started is constantly made more complete by the circulatory disturbance above referred to. That the last factor is principally concerned in complete strangulation is proven, I think, by the remarkable way in which the pedicle in my own case returned to its original relation to the remainder of the mass when it had been cut, after untwisting it.

Concerning diagnosis, Richardson says that the majority of cases have been of an acute character, that the symptoms do not appear until sufficient torsion has occurred to interfere with the return circulation, and that a probable diagnosis can be made only in the presence of an old hernia reducible with difficulty. Lejars holds that the series of symptoms usually noted, if associated with hernia and a right-sided mass, should almost without fail lead to the diagnosis of omental torsion rather than hernia. If hernia is absent, the quickly developed mass without the violent symptoms of suppurative appendicitis may point toward a probable diagnosis.

Smythe gives in detail what he considers the chief differential points between appendicitis and torsion, and says that he believes the diagnosis should be made after having seen one case. His chief differential points are the older age of torsion patients, the great preponderance of cases appearing in the male, the absence of nausea and vomiting, and the lower temperature. The pain is

not so severe in torsion and the patient's countenance is not so anxious. Superficial dulness on percussion and the sudden appearance of a tumor in the absence of violent symptoms also point to torsion, in his opinion. While all these things may possibly be true of a large series of cases of both diseases, the analysis before given throws some doubt upon their value in the individual case with which one may be confronted. Youth is no bar to torsion, as evidenced by my own case, nor old age to appendicitis. The larger series of cases here collected reveals no great discrepancy in sex. Nausea and vomiting are frequently seen in torsion and are sometimes absent in acute appendicitis, while severe pain is sometimes present in torsion and absent in appendicitis of the gravest type. Taken altogether, it would seem that superficial and extensive dulness, with the early and sudden appearance of a sensitive, but not especially painful tumor, or marked resistance over a large area in the absence of hernia in conjunction with much milder symptoms than one would expect in acute appendicitis, giving rise to such pronounced physical signs, are our most reliable guides in establishing a diagnosis of probable torsion of the omentum.

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DISCUSSION.

Dr. C. C. Frederick, Buffalo.—I have been very much interested in the paper of Dr. Skeel, and rise to report a case which occurred in my practice some ten or twelve years ago. I have not previously reported it. It was a little different from the cases cited by Dr. Skeel, in that it consisted in a torsion,

at the same time, of an ovarian cyst and the omentum; upon the top of the ovarian cyst, about the size of a fetal head, the omentum had made adhesions, and with the torsion of the pedicle of the ovarian cyst there was likewise torsion of the omentum, with disturbance of the circulation in both. This case came under my observation with all of the symptoms of intestinal obstruction; the woman was vomiting, and the attending physician was unable to get her bowels to move. Her abdomen was distended. I did not know at the time I opened the abdomen that she had an ovarian cyst, or that there was any new growth whatsoever. I operated, thinking it was a case of intestinal obstruction. There was stercoraceous vomiting and other symptoms of intestinal obstruction. After opening the abdomen I found that the lower part of the omentum for about six inches was gangrenous, with beginning gangrene in the cyst. I removed them both; the woman continued to vomit, and died at the end of thirty-six hours. Contrary to what one would expect in such a case, the relief of the conditions would relieve the vomiting, she vomited, the symptoms persisted, but whether there was obstruction or not I do not know. I could not find any at the time. These cysts and tumors are liable to produce symptoms of intestinal obstruction when the pedicle is twisted, but why this woman died I do not know.

Dr. Robert T. Morris, New York.—In connection with the remarks just made by Dr. Frederick, I wish to mention briefly a case that occurred in my practice some years ago. In that case we made a diagnosis of ovarian cyst and torsion, but it was not torsion of the pedicle of the cyst, but of the great omentum. That patient lived.

Dr. Edward J. Ill, Newark.—I wish to mention two cases I have had. Both cases were in men, fifty years of age or more, and both weighing over two hundred pounds. One case occurred about eight years ago, during horseback exercise. This case was taken for appendicitis. I operated on the patient within twenty-four hours after the accident, and removed the whole omentum. In the other case a portion of the omentum about the size of half a hand was strangulated by torsion.

At the time it occurred to me to look up this subject in the old pathologic anatomies, and I failed to find any record in the old books, such as Rokitansky's, and I wondered then whether my patients would have gotten well without operation. As Rokitansky had not spoken of it, the condition evidently had never occurred in his experience. It is likely that after a while the omentum would have been absorbed or diminished by new adhesions and given no further trouble, unless by accident an infection occurred. If the pathogenic anatomists did not find these cases at postmortems, the question arises, What is the ultimate outcome? What is the life history of these cases?

Dr. Skeel.—I would like to ask Dr. Ill whether his cases were complicated by hernia?

Dr. Ill.—They were not.

Dr. Skeel (closing the discussion).—I would like to remark that there have been reported from seventy to seventy-five cases of torsion of the omentum of all varieties. In some cases twist of the omentum has been known to cut an ovarian cyst in two portions by its tenseness. The great majority of these cases are associated with hernia, and only a small proportion of them recover when intraabdominal torsion is associated with strangulated hernia, and the condition is not recognized at the time of operation.

Cases of torsion of the omentum occur in hernia not only in the sac, but also above it. Von Eiselsberg, in a case of torsion in the sac, operated for the radical cure of hernia, taking off the portion of the omentum in the sac, but the patient died in thirty-six hours. Autopsy showed gangrene of the omentum inside the abdomen.

As remarked in the paper, diagnosis is very difficult, but the signs are usually so pronounced that the abdomen should be opened. A large per cent. of operated cases of hernia associated with intraabdominal torsion of the omentum die on account of strangulation of the omentum above the sac instead of the hernia in the sac. Torsion associated with hernia is, therefore, of great practical importance.

Since writing this paper, I have also operated upon one other case of omental torsion that was associated with hernia, torsion taking place at the tip of the omentum at the lower end of the sac, and at its neck, with normal omentum between, so that these cases are not so very infrequent.

The article by Smyth is a very instructive one, in that the author gives the differential signs, but all eventually come down to one distinct point—namely, that the physical signs of torsion of the omentum are out of all proportion to the subjective symptoms which one would expect in a grave abdominal lesion.

NYMPHOMANIA AS A CAUSE OF EXCESSIVE VENERY.

BY

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THE sexual instinct is not so common in woman as it is in man. With the latter it is, under normal conditions of health and vigor, an ever-present, powerful impulse to procreation. Sexual desire is entirely absent in a much larger number of women than is generally supposed. If present it is ordinarily not so strong as it is in man. If a woman has in her makeup the sexual instinct to the ordinary degree, that impulse is only aroused by the man she loves, and for no other has she that feeling. There is a small percentage of women in whom it is very strong, but relatively to the whole number the percentage is small.

Woman naturally is a monogamous, and man by nature a polygamous animal. Among many prostitutes the feeling of coitus with men in general is one of disgust. A small proportion of them are led to the life by their strong sexual desires. I have been told by many that their only reason for continuing it is that they are unable to earn a livelihood otherwise after having the stain upon their character due to their nefarious occupation. Otherwise they would gladly leave it for a purer life. Generally every such woman has some one man friend whom she chooses to call her lover, with whom there is sexual desire and gratification. Fortunate it is for the morals of humanity that woman generally is not so constituted sexually as is man, otherwise, as has been aptly said, this world would be one vast brothel. Surely, to the influence of woman we must look for the standard of moral tone, however high that may be. This being the sexual status of women, we turn to those individuals in whom nyphomania and the resulting excesses and perversions exist.

Nymphomania is an excessive development of sexual desire in the female, manifesting itself in various ways dependent upon the mental status, moral sense, environment, or social scale of the individual. Masturbation is probably one of its most prominent manifestations. Masturbation in normally constituted girls and

women is relatively infrequent. I have seen but very few cases in my whole experience. Among women physicians of large experience with whom I have conversed, with the object of obtaining material for this paper, the verdict has been the same, and naturally a mother would take her daughter, in whom she discovered such a habit, to a woman rather than to a man for advice. Constituted as most women are in their sexual instincts, there must be an exciting cause for masturbation in those who are physically and nervously normal. It is doubtful if the habit is acquired simply by the bad example of schoolmates or other companions who are addicted to the habit. I have personally never seen a case for which some cause other than bad associations was not found, and such also has been the experience of other competent observers.

Except in those born with strong sexual appetites the causes generally may be classed as local or neuropathic in character. The local causes are such as produce irritation of the clitoris and vulva, such as adherent prepuce, with or without collections of smegma beneath it, pin worms coming forward into the vulva, irritating vaginal discharges, or skin diseases, such as eczema of the vulva. The most frequent in the writer's experience is adherent prepuce with decomposing smegma beneath it. Separation of the adhesions, with or without circumcision, has in every such instance cured the simple cases in whom there appeared no neuropathic taint. Cure of other mentioned local causes also is followed by prompt and satisfactory results. Local causes, however, in those predisposed to nymphomania, when the habit is once established, may lead to a lasting habit, even when the causes are removed. The sexual instinct is not resident in the sexual organs; its center is in the brain; it is mental, and in derangements of the sexual centers in the brain we are to look in a goodly proportion of cases for those causes of nyphomania which are lasting.

Kraft-Ebing says that in maniacal individuals of the female sex the sexual sphere is often implicated; in fact, it is the rule that the sexual complexus of symptoms is always but the partial manifestation of a general psychosis. I am informed by a woman physician resident in one of the large State hospitals of New York that out of about one thousand insane women, at least 8 per cent. to 10 per cent. are masturbators and, from such histories as she can get from friends of the patients, that masturbation is a result of their mental disease rather than a cause, that masturbation followed the mental breakdown, or began with it. Dementia precox

is a disease of young subjects usually, and in many of the females suffering from this form of mental disease nymphomania exists. Occasionally one recovers, and with recovery nymphomania ceases, showing the sexual aberration to be a part of the psychic disturbance. She has had under her care patients for whom clitorodectomy was performed before coming to the hospital in an attempt to prevent masturbation, but in no instance was the habit to any degree checked by the operation. Local treatment does not benefit them; on the contrary, it intensifies the erotomania. The only treatment is in stimulating mental self-control as soon as the patient's mentality allows of an appeal to their volition and higher powers. In most instances nymphomania developed during the child-bearing age of those chronically insane, continues even after the menopause is past, and some cases of insanity developed after the menopause also develop nyphomania. This is all upon the authority above cited.

In women suffering from hysteria the sexual life is very frequently abnormal. As Kraft-Ebing says: "Indeed, always in predisposed individuals, all the possible anomalies of the sexual function may occur here, with sudden changes and peculiar intensity, and on a hereditary degenerate basis and in moral imbecility they may occur in the most perverse forms." It therefore appears that we have masturbation in three classes of women: first, those mentally and nervously normal with purely local causes; second, those of neuropathic taint, hysterics and neurasthenics in whom there is perversion of the sexual instincts, and, third, those who develop it as one of the symptoms and accompaniments in about 10 per cent. of the insane. The first class is cured as above stated, the third is generally confined in State hospitals, but the second class we have among us—namely, those with lesser neuropathic taints.

In the writer's experience those women not insane who have practised masturbation during a series of years have belonged to this class, usually with all sorts of functional nervous disturbances. In general, women who have practised masturbation long are not satisfied by normal sexual indulgence, athough the desire which they have may lead them to such indulgence. Recently a woman has come under my observation who has practised it for ten years. She has also at times had coitus, but never with gratification, and later resorted to artificial relief. Married women who have been masturbators seldom find gratification, and continue their practices during their married life. The same rule

seems to be applicable to them as to men who are masturbators; they are impotent in attempts at normal sexual indulgence—differing in that with men masturbators; attempts at coitus are prevented by a premature orgasm, while in women the orgasm is not excited thereby. This is the rule with sexual perverts of all kinds—the normal act is not one of gratification, or they would not be perverts.

Nymphomaniacs, especially among the insane and mildly insane, are liable to resort to exposure of their persons or by lascivious movements in presence of men, and thus invite coitus. But among those not insane such acts are seldom openly indulged in, but secretly they are often shameless. All sorts of degenerate practices are followed by some. One of the most frequent is tribadism—the so-called "Lesbian Love," which consists in various degenerate acts between two women in order to stimulate the sexual orgasm. Not an uncommon practice is the fondling of the genitalia of small boys and babies and contact of the same. In fact, the numbers and variations of practices are so various that it would take pages to mention them.

Girard (Kraft-Ebing) reports the case of a hysterical nymphomaniac who "at night, while the household was asleep under the influence of narcotics she had administered, she had given the children of the house to her lover for sexual enjoyment, and had looked on at the immoral acts. Before her nervous illness she had been a moral, trustworthy person; since her illness she had become a shameless prostitute, and lost all moral sense." Schüle (Kraft-Ebing) finds very frequently an abnormally intense sexual impulse which disposes girls, and even women living in happy marriage, to become Messalinas. The same author "knows cases in which, on the wedding journey, attempts at flight with men, who had been accidentally met, were made, and respected wives who entered into liasons and sacrificed everything to their insatiable impulse." It would seem that women with nymphomaniacal tendencies who cohabit with men early in life before resorting to masturbation become the subjects of excessive venery. As soon as the gratification of coitus becomes known to them they become devotees to it, and continue to indulge it to excess.

A case in point came under my observation seventeen years ago. A young, vigorous woman of German parentage, twenty years of age, became engaged and was seduced by her lover. She had never masturbated, although whenever in men's company she had felt an almost uncontrollable impulse to kiss and hug them; she

had, however, always controlled herself till she became engaged; she soon lost control in her lover's presence. After a year or more of excessive sexual indulgence he left her. From that day to the present she has never been able to control herself when alone with any man, and she has nearly ruined her health by excessive venery, but has never resorted to masturbation. She is now nearly forty years old and, although but a shadow of her former vigorous self, her passions are as uncontrollable as ever. Another, a young girl, fourteen years old, who never masturbated, gave herself to all the boys and men of her acquaintance, young and old, for nearly ten years, then married, but has never been true to her husband. These were not neurasthenics, neither had they any neuropathic taint. They both had unusually strong sexual desire when once aroused without the mental power to control it. Among this class of nymphomaniacs excessive venery is the rule. Among those who have practised masturbation long, excessive attempts at normal sexual indulgence are not common because unsatisfactory, and all forms of sexual perversions and gratifications to stimulate the desires are indulged in in the course of their excesses, which in time induce sexual neurasthenia, needing change of excitement.

Since writing the foregoing, which was intended to complete this paper, a case has come to me, a woman 31 years old, who began with epilepsy at 10, giving a history of injury to the head when a year old. She had epileptic seizures daily, often as many as four or five. During the past ten years she has taken some patent medicine, which controls it, and has had only four or five convulsions in the past ten years. Before puberty she began masturbating, and when 16 her clitoris was removed without result. At 21 she began taking the medicine which has controlled her for the past ten years. She has regained moral self-control, has not masturbated for nine years, and has no tendency to do so. She is engaged in clerical work and is a great help to her father in business.

My belief, then, is—judging from histories of many cases which I have collected but have not reported here—that nyphomania among mentally responsible and nervously normal women is relatively rare; that the mentally irresponsible are more masturbators than given to excessive coitus, and that only the mentally responsible nyphomaniacs, as a rule, are addicted to excessive venery only when their sexual fall is early in life.

DISCUSSION.

Dr. W. A. B. Sellman, Baltimore.—I am very glad that Dr. Frederick has brought up this subject for discussion, because Baltimore is one of the centers where this condition has existed. I do not know that my experience has been any larger than that of some of the other Fellows, but I have had several instances of this kind.

In my paper, read before the Association the other day, I mentioned the fact that I was in charge of an institution for young ladies, and I made a special effort to find out from the Superintendent and those in charge in regard to the prevalence of this habit of masturbation. I discovered two cases. One was a nervous little French girl, whose mother had decided erotic tendencies, who, after her husband died, very soon began to lead a life of immorality. The girl was brought up amid such surroundings for a number of years, and then she entered this home. The Superintendent discovered that she was masturbating, and was having a number of other young ladies in her room every night who indulged in the same practices, showing that the fact of having an individual of this character in the institution is very demoralizing. I believe that in our schools, especially our boarding schools, where large sums of money are paid for the tuition of each individual, the presence of one girl who is a pervert, may demoralize the habits of very many of the other boarders, so that I consider it very necessary that these cases should be recognized, in order to prevent the development of masturbation among these young girls, who are absolutely innocent at the time, who do not realize the immense injury or the immorality of their practices. I believe that it is the duty of every physician, who is an attendant to one of these fashionable boarding schools or institutions, where a large number of girls are brought together, to make inquiry and discover these criminals, as I call them, who are demoralizing others. Many times they develop these habits in young girls who are perfectly innocent, who would never have taken up the practice except under the tuition of a pervert or perverts. So I think it is an important subject that Dr. Frederick has brought before us, and one we should consider very carefully. We should not hesitate to make inquiries, and when we see young, nervous girls with big rims about the eyes and nervous temperaments, we should inquire into their cases. We got rid of this girl as soon as possible, and the Superintendent spoke to the girls who had been under her instruction, who had been her companions in criminality, and told them of the immense injury they were doing themselves. This practice has been abandoned in this institution.

I recall another case which I have seen in the last six months. This young girl was so nervous that I could not account for her

physical condition until I learned from outsiders that she had been engaged to a young man and displayed an unusual affection for him. So far as I could learn, there was nothing radically wrong done. However, through an aunt, I learned that the girl was a masturbator. The young man discarded her because she had been an inmate of an insane asylum. He was afraid to take her as a wife on that account. This habit of masturbation so increased when he left her that she became more nervous than ever. She became engaged to a young man, a patient of mine, and, through him, she was brought under my care. I was called to treat her nervous condition, and I found that many reflex disturbances had been set up by the practice of masturbation. Finally, an aunt came to me, and gave me information about her family history, about her being a masturbator, and I think she is a hopeless case. I believe she will end her life in an insane asylum, the same as an aunt and her mother. Whether they were masturbators or not, I do not know, but I strongly suspect they were guilty of the same habit.

The subject is an important one, and I shall hope to hear from a number of members who have had experience with these cases.

Dr. Oscar H. Elbrecht, St. Louis.—I have seen but one case of nymphomania, and that was in a little girl, eight years of age. The case is still under my observation and treatment, and has troubled me not a little. The father of the little girl was a divorced man, and his wife taught the little girl these practices. She told her husband, before she left him, that she would pay him back if she knew he was going to get the child. She did not defend the divorce suit at all. This little girl kept up these practices for three or four years, and the habit became so frequent that she would, while playing with other girls, run away and practice masturbation, then return, and enter into the games they were playing. The father is a sensible man, and has spent much money on her for treatment. He was afraid that these practices would eventually cause her to lead a life of shame, and said to me that he would rather see her die early in life than to feel that such would be her probable future. I told him to take her from the surroundings she was living in and place her in the country where there would be no other children. She went to the country for six months, and his reports for the first four months regarding her were very good. She was kept under constant observation, and during the night a night a sack was made for her, so that she could not use her hands, her hands being tied to the side of the bed. She wore a pair of drawers that were closed at the bottom, and straps tied on each bedpost, so that she could not bring the legs together. The clitoris was adherent and on the advice of a neurologist I did a nymphotomy, taking off the labia around the clitoris. But how much good it did I do not know, for she only stopped the habit for about four months. I advised the father to wait before clitoridectomy was done, to give her more time, for

perhaps when she became a little older the habit might bcome disgusting to herself.

I am very glad this subject came up, and as our President (Dr. Morris) has had a great deal of experience along this line, and has written on this subject, I am sure the members would like to hear from him before the discussion is closed.

Dr. Montgomery Linville, Newcastle.—I desire to relate briefly a case that came under my observation a few years ago. A young couple, husband about thirty, and wife aged twenty-seven, consulted me, saying that it was impossible for them to enjoy sexual intercourse. After making an examination I discovered that the woman had no appearance of a vagina. After being married three months, and unable to enjoy sexual intercourse, living in the city of New York, the woman was taken to a hospital there and a surgeon attempted to manufacture a vagina, but made a failure. One could see a slight scar as a result of the operation. When she came under my notice I sent her to the hospital, operated, and discovered that the bladder lay on top of the rectum, so that there were very few fibers of cellular tissue between them. The dissection was difficult. I dissected, with one finger in the rectum and a sound in the bladder; I packed with gauze; kept the patient in bed for four weeks, and flattered myself that we were going to have an excellent result. I allowed the patient to go home, and continued the packing with gauze. But in a week or ten days I discovered that the vagina had disappeared. When she got on her feet the packing would come down and the raw surfaces would come together and adhere. I became discouraged, but she was anxious to try it over. I then had a wooden probang, rounded on the end, applied a belt around the abdomen, with rubber tubing through the ends of my wooden probang. After I applied this, when she recovered sufficiently to get on her feet, she wore that for three months, with a splendid result. I am glad to announce that it made them a very happy couple. I also neglected to say that I dissected above the tube well and was unable to discover any sign of a uterus, tubes or ovaries, and still this woman had a strong sexual appetite, so much so that her nervous system was considerably injured from the seven years of her married life. Also the husband suffered to a great extent from his nervous system, but both had strong sexual appetites.

Dr. John A. Lyons, Chicago.—I would like to report a case which is somewhat similar to one of the cases that have been cited in this discussion. In 1889 a woman appeared at the Post-Graduate Hospital, Chicago, and it was learned that intercourse had been had into the bladder for several years. A dissection was made, the perineum divided, and a glass tube, something like a test tube but larger, was introduced and an excellent result was obtained. The woman married, and her husband, finding out her condition, applied for a divorce and obtained it on the ground that she was not properly sexed.

These cases are fairly common, and in contradistinction to the case mentioned by Dr. Linville, my own experience has been among married women.

I was called one night to a case of confinement some fifteen years ago, and discovered that the woman, who was supposed to be in labor, was a nymphomaniac. I left the house disgusted, and told the husband to inform me again if the labor pains appeared stronger. About two hours later he returned and I made the same trip, occupying at least one hour's time in so doing. On arriving there I had the same experience as I had during my first visit. I was so disgusted that I almost had a quarrel with the husband, and told him not to call me any more, that she was not in labor. I told the husband that I did not want him to call me at any time, feeling that some family disturbance might arise. I did not tell him the cause of the condition of his wife, although he appealed to me to know what it was, but I refused to see his wife any more.

A very excellent physician at Englewood, a suburb of Chicago, and his wife took a trip to California at one time, and while he was absent he asked me to take charge of his patients. The first patient I was called to see was a lady suffering from a recto-vaginal abscess and fistula. He had been taking care of her and the wound had not healed. Operation should have been done before he left, but it was not. He was washing out the fistula with peroxide of hydrogen, and I followed this treatment until he returned. This woman was never satisfied with cleaning out the fistula with either a syringe or peroxide, and as a consequence a vaginal examination was called for, which she said was necessary to manipulate the fistula and in order to get out all the pus. On making a vaginal examination I noticed that sexual desire exerted itself to a disgusting degree.

While there should be a limit to the discussion of subjects of this kind, still we should discuss this subject here frankly and thus learn to advise these patients what to do if it is possible to overcome or stop such a habit.

Dr. Robert T. Morris, New York.—Dr. Elbrecht has asked me to make some remarks on this subject, but Dr. Frederick has practically covered the points. It seems to me in those cases of nymphomania of central origin nothing is to be done. Cases due to preputial adhesions are very common, and we can usually effect a complete cure if the girl has normal moral sense, and if the doctor uses delicacy. In selecting cases for operation I think that we have to rule out very carefully a neurosis of central origin for the disturbance. We should leave that class alone. Circumcision or removal of the clitoris will cure a number of cases of nymphomania of central origin temporarily, just as it will cure epilepsy; but the effects of the operation are hardly passed before the trouble returns.

Dr. Frederick (closing the discussion).—Dr. Morris has summed up this matter very nicely by saying that when there is

no hereditary predisposition, when there is no neuropathic taint in the individual, the removal of the local causes will generally effect a cure. In those cases in which there are hereditary tendencies and a neuropathic taint, removal of the local conditions does not cure the trouble, because it is mental, and not in the sexual organs. In a large proportion of cases nymphomania is an expression of sexual desire associated with psychopathic trouble. But, as Dr. Morris has said, with a normal woman, with the normal delicacies of the sex, if the local condition is removed, the patient is likely to get well immediately. Persistence in these bad habits, however, leaves a noticeable effect on the nervous system of the individual.

THE CONSERVATIVE MEDICAL TREATMENT OF SALPINGITIS.

BY

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THE writer is well aware that the subject of this paper will not be popular with the rabid operators, nor does he look for any sensational reputation by bringing so commonplace a subject before this body. Much perseverance, good judgment, and patience are often required to be successful. Not only the disease, but often the patient must be treated. However, all this will well repay the conscientious physician when he has saved the tubes and ovaries for a woman. This matter of conservative treatment of salpingitis is considered by many of the later text-books in a most nihilistic manner. Thus, a most excellent work attributes all good results to nature. Nothing helps us out so well as nature, but a little rational assistance goes a good ways. These books are kind enough at least to concede that good results are possible. Let there be placed in the hands of every practitioner such means as may result in some good. The surgeon need not be discouraged; there will still be enough bad cases for operation.

The subject is brought up for several reasons. First, to bring out a discussion on the subject which will be valuable to us all. Furthermore, to enjoin rash and uncalled-for mutilating operations with a high mortality, and with no absolute surety to our patient, that she will be well afterward, or from which she may take years to recover. For no one can prognosticate which case will get thoroughly well, and which one will remain an invalid. Those of us who have attended the medical meetings of two decades ago will remember with what derision those were treated who did not advise immediate operation for any acute pelvic inflammation. Their epithets were numerous, and the sarcasm they had to endure, both in public and private, knew no bounds. These men were called conservatives, with an exclamation or interrogation point. The writer, even at this day, looks for adverse criticism, if he has understood the trend of the discussion at our last meeting in Cincinnati. He writes this paper at the

instigation of one of the most earnest and truth-seeking Fellows, and looks to him to open the discussion.

The writer is not giving you anything particularly new, but simply the principles and the technique under which he has been working for years. Let it be understood plainly at the outset that there are cases which need our surgical assistance, and when they need it it must be done quickly and thoroughly. Later on the writer will be obliged to speak of such cases, that there may be no misunderstanding in his position, and that the discussion may remain in the channel indicated by the title of his paper.

There are three forms of cases that come to us for medical treatment. First, the acute febrile conditions resulting from an extension of a gonorrheal vaginitis and endometritis into the tubes and to the pelvic peritoneum. This forms the great majority of cases. The cases for treatment do not only include those of catarrhal salpingitis, but also those of a purulent character, since they are often enough simply different stages of the same disease. Second, the acute febrile form due to a variety of poisons following labor, abortions, and unclean intrauterine instrumentation; and, lastly, the results of inflammatory conditions following tubal abortions and coming to us late after the accident.

While the treatment of the first and second is about the same, in the last it will be that for chronic pelvic adhesions. It will hardly be necessary to say that medical treatment is not indicated for abscess of the ovary, due to any of the above causes, tubercular disease of tubes and ovaries, nor the extremely rare form of actinomycosis, ascaris, or echinococcus of the tube. There can be no question that women with gonorrheal pus tubes get well, if not anatomically, at least subjectively, and often enough to such an extent that a conception and normal puerperium takes place. Unfortunately, there are no statistics available to say how many women get well in this sense. Von Winckel[1] tells us that in non-gynecological postmortems he has observed 80 per cent. of pelvic adhesions.

Of the many cases uppermost in the writer's mind, because of the very extensive disease and because of his bad prognosis, it might be worth while to detail two, in short words. Both cases were seen by the writer in the acute stage of the disease, and were under his care for months. They were discharged well, but remained under observation for over five years. Furthermore, the

[1]Behandlung der von Weiblichen Genitalien ausgehenden Endzündungen des Beckenbauchfells, etc., Jena, 1897.

writer was permitted to examine them after the birth of their children, and was unable to detect any residuary symptoms of their former disease. The last patient gave birth to her child a year ago. The first one has borne several children since the birth of her first.

The treatment of gonorrheal pelvic inflammation should be divided into three stages. First, the treatment of primary infection; in other words, the prophylactic. Second, the treatment of the acute tubal and peritoneal inflammation; and third, the treatment of the sequelæ. The treatment of the vaginal inflammation should be started by swabbing the whole vagina most carefully and thoroughly with a five per cent. solution of chloride of zinc recently prepared. This is necessary but once, and rarely a second or third time. It is best done through an old-fashioned hard rubber or glass cylindrical speculum, of as large a size as the vagina will tolerate. From twenty to thirty c.c. of the solution are poured into the vagina, through the instrument which has first been introduced so as to bring the cervix plainly into view. If the cervical canal or the uterus is affected by the disease, an applicator armed with cotton is introduced into the uterus through the liquid, thus carrying some of the solution into the cavity of the uterus. The speculum is now gradually withdrawn, leaving the fluid in its upper zone until the instrument is just within the grasp of the ostium vaginæ. The liquid is now allowed to flow out and the instrument again pushed up until the cervix is reengaged. The same quantity of fluid is again introduced and the procedure repeated. To secure as thorough an application of the medicament as possible, a swab of cotton is pushed through the liquid, urging it into every recess of the vagina. Through the same instrument the whole vagina is filled with a five-yard strip of iodoform gauze, three inches wide. As the gauze is inserted, the speculum is gradually withdrawn, so that no gauze packing ever remains in the speculum. The gauze should be left in for three days and then withdrawn. Large douches of potassium permanganate 1-2,000 are now ordered twice daily.

Renewed applications of the gauze may be called for, but it is rarely necessary. As a rule, repeated applications should be avoided, as they often prove harmful. When the endometrium is much infected, as shown by a copious mucopurulent discharge, our first object must be to secure good drainage. When there is a small os internum or externum, it should be dilated with steel

sounds, and a narrow strip of iodoform gauze introduced. As soon as there is a wide opening, the writer has for the last eight or ten years followed the advice of Professor Grammaticati Tomsk, Siberia, and injected into the uterus drop doses of a 5 per cent. solution of alumnol in half-strength tincture of iodine, thus:

℞ Aluminol 5.0
Tr. iodine.
Alcohol .....aa 50.0

It will hardly be necessary to say that such patients should be kept in bed, or at least on their backs, for an hour or longer after the application. If one drop is borne well, two or three may be injected the next time. The writer has never seen much good result from a curettage in these cases, unless they were accompanied by a hyperplastic condition of the endometrium. But this is all preliminary and preventive, though no less important, than the treatment of the inflamed tubes and pelvic peritoneum.

When a salpingitis of the acute form is established, the recumbent posture should be urged. Pain and temperature demand an ice bag placed above the pubes, and will assure much relief. Opiates are thus avoided. As soon as the temperature, as taken by the rectum, is below 101°, we should remove the ice bag. Nothing will reduce pain and an acute exudate more quickly than the application of cantharidal collodion to the roof of the vagina. It is important to make the application carefully, so as not to allow the irritant to flow over the lower part of the vagina. The application should be made either through a Sims speculum, with the patient on her side, or through the old Ferguson speculum. An applicator is armed with a bit of cotton, and carries the collodion around the cervix. Before there is any chance of its flowing down the vagina and irritating the vulva, a dry cotton tampon is pushed up. It is not well nor necessary to apply the collodion too freely. The cotton tampon is removed in four hours and copious hot douches ordered. There will be an immense amount of muco- and seropurulent discharge for several days, and great relief from pain. The writer always makes the application on the first indication of a swollen tube or an exudate.

When a second application is called for it should not be repeated in less than six days. On the second day after the application the roof of the vagina is painted with Lugol's solution of iodine, and a glycerine tampon placed over it, to be retained for from six

to twelve hours. The glycerine is applied daily, and the iodine once in three or four days. The glycerine is easily enough placed by the patient herself with a Thomas applicator (cupping cup). The writer is of the opinion that glycerine affects the parts as well as ichthyol, and is much cleaner. After the removal of the tampon, large hot douches of potassium permanganate are ordered, the patient lying flat on her back, preferably on the floor or table, but not in bed. This is advised so that the hips may be properly elevated, and the upper part of the vagina filled with the hot fluid. Plain hot water at about 110° is used when there is no virulent discharge. No hot douche should be used immediately before any application.

All this treatment for the acute salpingitis takes precedence over any treatment of the vagina, even when gonococci are still demonstrable there. When the fever has subsided, and there is still pain and heaviness in either iliac fossa, a fly blister one by one and one-half inches is placed directly above Poupart's ligament and near the middle line. While blistering has been a favored remedy with the writer ever since he began to practise medicine, he was always shy to speak of it because of adverse criticism, and because of the failure for a reasonable explanation of its beneficent influence. Now that it is known that a blister produces local hyperleukocytosis, a physiological explanation is offered. It is not uncommon to see a large edematous exudate melt away under a blister, especially when applied to the roof of the vagina. This sort of treatment should be continued until all sensitiveness of the pelvic contents and fever have abated. It may be said that this treatment is rarely objected to, even by sensitive patients. With this a cure is not established, for we cannot yet expect an absorption of adhesions, and thus a freely movable uterus, tubes, and ovaries.

The glycerine tampon and its accompanying technique is now dropped, and one of an elastic material made of picked oakum, jute, or lamb's wool, covered with a film of cotton, takes its place. Once in four days the roof of the vagina is painted with Lugol's solution of iodine, wiped dry, and subnitrate of bismuth powdered into the vagina. The oakum tampons are now introduced, and as much pressure made as the patient will bear. It should be our endeavor to increase this pressure every time the patient comes to us. These tampons are left in place for two days, and after their removal the patient is directed to use hot douches, not above 105°, while on her knees and elbows. During all this time of the

subacute stage no bed rest is necessary, for the patient may come to the clinic or our office, but she should be guarded against fatigue, and rest is enjoined during the first forty-eight hours of the menses. Sexual intercourse has, of course, been prohibited all through the disease. It should not be forgotten that such patients should have free and easy evacuations from the bowel, preferably produced by a saline cathartic. If the uterus is large she is given ergot and potassium bromide in medium doses, three times daily, the latter for the purpose of reducing any sexual excitement or inclination.

While the massage of Thur Brand has been of some use, and very efficacious in many hands, the writer has used for many years rubber bags filled with mercury, of various shapes and sizes for the same purpose. The rubber bag filled with mercury is placed into the vagina, the patient being on her back, with a pillow under her hips, or else in a moderate Trendelenburg posture. The mercury pressure is continued until it becomes annoying. The pressure is gauged entirely by the patient's sensitiveness. A second bag is placed on the patient's abdomen, just above Poupart's ligament. The seance lasts from one-half to two hours, and can be applied by almost any office nurse. Recent adhesions and exudates are rapidly absorbed by such treatment, and old adhesions are often stretched and made to yield, so that a more freely movable uterus, tubes, and ovaries results, with much subjective benefit to the patient. But it is in just these cases that we so often fail and where surgical interevntion becomes desirable to alleviate suffering.

When we have relapsing attacks of pelvic peritonitis this is not applicable. Constantly relapsing attacks will be found to be the result of great menstrual disturbances or severe physical fatigue, or of violent sexual intercourse, thus possibly a reinfection. While one or two exacerbations are frequent and need not disturb us, many repetitions are most likely fatal to the patient's well being, and the removal of the offending organs should be considered.

As a preventive for tubal inflammations following septic endometritis in late abortions, miscarriages, and at term, the writer knows of no better treatment than the alcohol drain spoken of before this Association at its meeting in 1900. When the pelvic disturbances become worse, in spite of our endeavors, and thus the health and life endangered, we have no resource but surgical means. Whether this means a vaginal drainage, vaginal total

extirpation, or a celiotomy, does not belong to the scope of this paper. This much the writer knows, that the operations have become less and less frequent in his hands, and mutilations spared to many a woman.

DISCUSSION.

DR. ROBERT T. MORRIS, New York.—There are certainly a number of cases of gonorrheal salpingitis, or gonorrheal infection, which will disappear, due to the resistance of the patient, although now and then we see a case in which we want to know how to help it out. I have one patient whose tubes were removed (pus tubes), who developed gonorrheal septicemia, so-called gonorrheal rheumatism, with stiff elbows, stiff spinal column, stiff knees. I treated her for a year or more and could not get her well, and was sorry that I had not taken out the uterus. She began treatment with some patent preparation (I do not know what it was), and she was well in two weeks. Surely, there is something more to be done for these cases than we have been doing for them in the past.

DR. HERMAN E. HAYD, Buffalo.—I want to thank Dr. Ill for this instructive paper. He has considered the subject in all its phases. He does not maintain that every one of these acute troubles is going on to resolution, nor does he disclaim that many of them, sooner or later, will not have to be operated on. But what he wishes to impress upon us most forcibly is to try these tentative measures first, and not subject these acutely sick women to immediate operation, and, I tell you, he struck the keynote and has sounded a warning to every one of us. The older we grow and the more we operate the more we are convinced that we have been operating altogether too much and have unsexed and mutilated altogether too many women. I am satisfied that the doctor's prophylactic measures in connection with the treatment of acute gonorrhea are splendid and the very best treatment we can perhaps adopt even though they be old-fashioned. It is just as effective, more so than protargol and the other nitrate or silver preparations, and it has the advantage of not destroying all of the underclothing that women wear, because if we are not exceedingly careful, no matter how we apply the napkins, expensive underclothing is going to be injured and spoiled by the application of silver preparations. Although it requires a great deal of judgment and thought on the part of the surgeon, still I believe it is often good practice to dilate a contracted pinhole os when there is an acute gonorrheal vaginitis, although ordinarily I would argue against that, for the reason that the mutilation and traumatism associated with the dilation might invite the quick invasion of the uterus, perhaps the tubes and ovaries as well. However, I am driven to the conclusion that it is often good practice to dilate

a contracted os, on account of the experience I have had with men. When a man comes to me with an acute gonorrhea, with a contracted meatus, I open the meatus at the first visit, and I realize that I am going to make him worse for the time being, perhaps for a week, but I am going to cure him of his dose infinitely quicker than if this contracted meatus is left to cause hyperemia and excessive engorgement of his deep urethra by reason of the obstruction to the flow of urine and discharge which a small opening causes. I lessen the attack of gonorrhea, I make it much shorter and much easier for him to handle when the urethral opening is large and patulous. I believe upon the same grounds in opening a contracted os uteri, if the infection gets up into the uterus, which it will; the case will get well quicker. Why? Because you establish that great principle of surgical treatment—drainage. In the woman who has borne children, and the os is flaccid, there is no particular need to dilate it, so I agree with Dr. Ill that these cases ought to be thoroughly swabbed, the uterine cavity and all the little crevices, with a 5 per cent. solution of chloride of zinc.

So far as the treatment of the acute febrile condition is concerned, these patients should be put to bed immediately and should use hot water injections. I shall not forget when two years ago Werder read his paper, how we jumped on him, because, at the time, I did not believe it was possible for so many patients, with acutely inflamed tubes, to get well without operation. But such a statement, coming, as it did, from Dr. Werder, who can operate as well as any of us, and from Dr. Ill, who can operate as well as any of us, opened my eyes and caused me to take a bigger and different view of the matter. Consequently, at the suggestion of Dr. Ill I began to apply cantharidal collodion to the vault of the vagina, and was surprised at the relief which was afforded these patients. I had been practising something along that line, because Dr. Mann suggested to me that one of the best methods of treating acute salpingitis, whether it was of a puerperal, septic, or gonorrheal nature, was to give injections of mustard, two teaspoonfuls of mustard to the quart of water. I was surprised to notice the relief which that treatment afforded these patients, and in many of them the inflammatory troubles subsided. Dr. Ill's application, of course, increases local phagocytosis; it gives an opportunity for the dilated and engorged vessels to empty themselves. It is strange how cold applications in one individual will afford relief, while in another the same treatment does not relieve pain. In other cases poultices will afford the greatest relief. I have arranged my practice to suit the patients, if I may use that expression, and have largely left the matter to the patients themselves—if they want ice, try it; if heat, try that. If the case be one of acute inflammatory trouble, I believe that ice for the first twelve hours is good treatment. After that it may be dangerous. Poultices and hot applications are most suitable and most satisfactory for late cases. But for the first ten or twelve hours of any

inflammatory trouble, whether the result of infection or operation, I believe in the use of ice, but after that poultices, and cover the poultice with oil silk and over that a hot-water bag, so as to keep the heat up, changing the fluid in the bag frequently, and then it is not necessary to change the poultice so often.

So far as antiphlogistine and other preparations that are lauded so highly are concerned, I will say that I have tried them in all kinds of cases, over the ribs for pleurisy, over the abdomen for peritonitis and appendicitis; in fact, for all kinds of conditions, and I don't believe the patients have obtained much benefit from them. I take very little stock in them. I am satisfied to go back to the use of the old-fashioned poultice or ice-bag.

Another good point in Dr. Ill's treatment is where the patients are allowed to get up, and, if possible, come to our offices, when we can commence the treatment with oakum. I do not understand exactly how the oakum produces the results he referred to. Does he treat the case by filling the vagina with oakum, which absorbs the secretions and swells and in that way produces a certain amount of pressure all the time? As I understand, with each succeeding treatment, he packs the oakum in harder, so that it is not alone a constant pressure which is being exerted, but a certain amount of massage all the time.

So far as his bag is concerned, I do not know anything about it, but it is something I am going to try in the future. Dr. Ill says he believes that glycerine alone accomplishes as much as the combination with ichthyol. I do not agree with him in that respect. I am going to keep on using ichthyol. In cases of ulceration or superficial erosion of the os, I have in many instances painted the ulcer or erosion with both tincture of iodine and nitrate of silver, without healing taking place. Again, I have curetted the erosion without benefit, and yet one or two applications of pure ichthyol have been followed by immediate healing of the ulcer. There is no question about this. It has been demonstrated too often, to my mind, to believe otherwise. If that is the case, then the ichthyol in combination with the glycerine must make it more effective. We can operate on the rest of the cases that do not get well by the measures that have been mentioned. It has been impressed upon me more and more in my practice in the last five or six years that these acutely sick women should not be operated upon unless we have grave symptoms such as Dr. Ill has mentioned. If we operate without those symptoms, the chances are we will be led into a lot of difficulty. (Case in point was cited.)

Dr. William H. Humiston, Cleveland.—We are again indebted to Dr. Ill for bringing before us a very important subject, in which he has presented some original ideas. There is no more important subject that will come before this body than the one he has so ably presented, and while I am not familiar with some of the details of his method of treatment of these conditions, I am

obtaining equally good results from a method I adopted about five or six years ago.

I believe that if these patients with acute gonorrhea would come to us sufficiently early, we could establish an acute abortive treatment, with the most gratifying results. A woman has a sudden onset of a discharge; it is irritating, and she is uncomfortable, and she will consult a physician immediately in nine cases out of ten, and this is the time when we can obtain brilliant results from the abortive treatment of gonorrhea. I believe that if you were to tell such a case that she is ill, even though she is able to come to your office, and you insist that if you are to treat her she must retire to bed and remain there until you tell her to arise, you will succeed. My method of treating these cases of acute gonorrhea early is to put them to bed, to thoroughly cleanse the vulva, the vagina, and often in these cases you will find little or no discharge or infection of the cervical canal. If treatment is delayed for two or three days you will find more or less infection of the cervical canal, but when active treatment is begun at once there is no infection of that part. You cleanse the vagina thoroughly under distention, separate every fold; take a strong solution of bichloride of mercury and swab the vagina out thoroughly; dry the surfaces and touch all eroded spots with 10 per cent. nitrate of silver solution, being careful that the excess does not run over those portions of the vagina that have not become infected; dust the whole vagina with boracic acid powder (7 parts boracic acid and one part iodoform), then pack the vagina full with iodoform gauze, and the bacterial oven is destroyed. You can repeat this treatment after forty-eight hours, following the treatments up every forty-eight hours for a week. By so doing you will be surprised at the improved appearance of the vagina. With the erosions all healed, the discharge disappears. Then as a prophylactic I keep these patients in bed a week longer, resorting to frequent douches of permanganate of zinc. We get an effect from the zinc which I have found beneficial in these cases.

If there is involvement of the cervix, I think, as Dr. Hayd does, it had better be attended to, so that free drainage may be established. You can dilate the cervix carefully by graduated sounds without injury or without making abrasions of it, if you do the work gently and carefully; wash out the cervix, but do not go into the uterine cavity with a probe unless you have good reason to believe that it is infected. In nine cases out of ten, by treating them in this way, you limit the gonorrheal process to the structures of the vagina and the cervix.

Let us take the cases that are brought into us later in an ambulance, the cases that have been neglected, that are treated with opiates and frequent douches; we have involvement of the appendages. I formerly operated on such cases, with a high mortality. But I have not operated on such cases for years. I find that most of these cases had been taking morphine. If you

clear out the bowels, give them plenty of water to drink and put on an ice bag, withdraw all opium, you can accomplish a great deal for these patients. The opiate checks elimination from the kidneys, from the bowels, and makes it difficult to keep up elimination, which we must have in these cases.

Where pus is formed, and it can be reached through the vagina with a simple operation, you can succeed. I say to the friends of such patients, perhaps an operation may be necessary six months or a year later to break up adhesions and remove diseased structures. But I have been surprised at the number of patients that recovered fully, with a freely movable uterus, and gave birth to children later.

We have been too prone in operating on these patients in times gone by, but I believe now that this method has been placed before the profession, we will not operate on these cases as frequently in the future as we have done in the past.

Dr. C. C. Frederick, Buffalo.—I am pleased to hear Dr. Ill's paper and the conservatism displayed in the treatment of this class of cases. I do not remember ever having done an abdominal section for a case of acute gonorrheal salpingitis and pelvic peritonitis, except once, in all my experience in operative work, and I early learned this from the case of a prominent man whose wife had gonorrhea. I wanted to operate on her. She objected strenuously, and so did he. I said, "I want you to call in counsel," and they said, "We don't want an operation done." I fought the case through, and that woman got well without operation. She has not had any trouble since. She has borne one child since. That was thirteen years ago. When Nature takes care of cases like that, I have faith in her. I expect to operate on a case to-morrow with following history: two years ago she had a very sudden, acute attack and was in a very dangerous condition. At that time I opened Douglas's pouch, drained the serum, with immediate relief of pain and all dangerous symptoms, and gradually there was complete recovery, so far as her troubles were concerned, symptomatically. The woman has been in Southern Arizona for a good share of two years, living in the open air, in an effort to get well, but she has a large amount of pelvic trouble, and has come back to Buffalo, and I expect to operate on her to-morrow morning to clear up the immense amount of adhesions, and probably remove a pus tube on the left side, and possibly a tuboovarian abscess on the left side. But I believe with Dr. Ill and those who have spoken, that we should not be too hasty in operating on these acute cases. To operate on them in the acute stage is extremely dangerous. The results are liable to be serious, and then we do not know in any of these cases whether recovery will eventually take place if we leave them alone and treat them as Dr. Ill has directed us to do.

I am very pleased to have heard this method of pressure with the mercury in inducing absorption. I suppose it is Dr. Ill's idea

that by making pressure and stimulating the lymphatics, we bring about absorption of lymph, etc., which is thrown out. That idea is entirely new to me, and I shall try that method. Seemingly it has all the elements of success from a theoretical standpoint, and, no doubt, from a practical point of view, because in other localities rubber dressings and other things that bring about pressure on new growths and inflammatory tissue cause rapid absorption of them. I remember, when a medical student and interne to a general hospital, Dr. James P. White always treated these cases with local applications, as a strong tincture of iodine, applied to the vault of the vagina, and also by the application of blisters. It was long before the days of Lawson Tait, or when no operative work was done for these patients. He knew by experience that these cases did better with local applications of cantharides over the groins and in the vault of the vagina, or by the tincture of iodine.

Dr. W. A. B. Sellman, Baltimore.—I thoroughly agree with the gentlemen who have preceded me in regard to the non-operative treatment of these cases. I do not think any case should be operated on unless general peritonitis has developed, as I do not see any good reason for so doing.

It is my practice to treat cases of gonorrhea by painting the vault of the vagina with the strongest iodine I can secure, that is, the officinal tincture. I have abandoned the use of Churchill's tincture, and I am now using the strongest tincture I can obtain, and I like to have iodine where the alcohol has evaporated somewhat rather than the fresh preparation. I buy my iodine by the half gallon and keep it until it is used, because in that time a certain amount of evaporation of alcohol takes place, and I get a stronger preparation.

For the relief of pain, to which these women are subject, I use sometimes the old-fashioned turpentine stupe; that is, a Turkish towel wrung out in water as hot as the hands of the nurse can stand, and on that is sprinkled turpentine. This is applied over the abdomen, and generally it will give more relief than all the opiates and anodynes you can administer. I leave it on until it almost blisters the abdomen; then I apply an ice-bag, but I use counterirritation first. First, I counterirritate the vagina, and if I find there is any tendency toward the spread of the infection to the uterus, I dilate by gradual dilatation, using hard rubber dilators of various sizes, such as those of Hegar, and gradually in this way dilate and then swab the cavity out with iodine, pushing the applicator higher up. I do not wish to go beyond the internal isthmus or above the contraction, and I do not believe you will carry the infection to the body of the uterus.

Speaking of tampons, I favor them. I have had made a tampon of my own, as I do not believe in oakum. I do not use absorbent quantities, but gauze of from twenty-five to thirty thicknesses. My nurses make them up in quantities. They are round and cut in a circle an inch and a half in diameter. Cotton,

when it becomes moist, soon becomes as hard as wood; it is uncomfortable to the patient. It becomes soggy. This acts as a drain. I place one tampon, then another, and may have as many as four or five tampons in the vagina at one time. I keep them separate. The first tampon I saturate with a solution of ichthyol, and, by the way, my formulas are taken from a patent preparation. I use carbolic acid, iodine, and glycerine. I saturate my first tampon with that, introduced below when I place the dry pledgets. In that way I drain, so that it acts like a Turkish towel, which will empty the basin, so that the gauze packing will drain all secretions from the cavity. I allow the tampon to remain in twelve hours, then replace it. As soon as the tampons are removed I wash out with an astringent solution. The suggestion of Dr. Humiston to use permanganate of zinc is excellent, provided the solution is not too strong. It has the disagreeable effect, however, of staining the clothing. When the inflammation has subsided, and after washing out I very often, with powder-blower, introduce another preparation, known as Markasol powder. This was suggested by a New York physician, and I have used it for years with great satisfaction. In cases of infection no absorption of deleterious products can take place from it.

In regard to mercury bags, I was interested in what the essayist said about them, but I think we can get equally as good or better results from another method, that is, by vibration with a hard rubber vibrator over the sensitive ovary. By so doing, you not only stimulate the circulation, but break up adhesions and tend to secure absorption. I believe vibration brings about the same results as the mercury bag suggested by Dr. Ill, and we get even more rapid results because the stimulation by vibration is greater.

The paper was certainly a very interesting and instructive one, and I am very glad to have heard so free a discussion of the subject.

Dr. Roland E. Skeel, Cleveland. During the reading of Dr. Ill's paper there were several questions that came to my mind, although Dr. Frederick in his remarks has answered most of them. The first thought that occurred to me was that only a small minority of operators ever dreamed of operating on patients with acute gonorrheal salpingitis, as distinguished from pelvic inflammation due to pyogenic infection. I have for a long time heard nobody advocate radical operation in the acute stage of gonorrheal salpingitis as distinguished from acute infection due to unclean abortion or post-partum infection.

In closing this discussion I would like to ask Dr. Ill to tell us whether his observations of the good results of this treatment have been based upon the fact that the gonococci disappeared from the body of the uterus promptly after the acute infection was over, or not, and whether he has seen any trouble from dilating, washing out or making applications to the interior of the uterus as a prophylactic measure against the future development

of salpingitis, and whether there is not more risk of introducing infection into the interior of a non-infected uterus than there is probability of doing good. It has been my experience, limited, to be sure, that the moment gonococci appear in the interior of the uterus, they likewise appear in the tubes, and that it is then too late for local applications to be of any benefit. I understood the essayist to say that gonorrheal salpingitis recovers spontaneously. I would like him to state in his reply whether he has ever seen gonorrheal pyosalpinx recover from any method of treatment outside of extirpation. While it is not pleasant to be a therapeutic nihilist, still two diametrically opposed methods have been suggested as being of value. In Dr. Ill's method one is led to believe that it is pressure which produces the effect on the lymphatics and bloodvessels, and this pressure anemia is directly opposed to Bier's hyperemia, which presupposes overfilling of bloodvessels and local lymphatics as a method of stimulating resistance in the tissues, and the question at once arises whether it really makes any difference in salpingitis what application is made locally, and further whether local methods of treatment are not more or less a farce, and whether after all it is not the patient's resistance that effects a cure and not these little tinkering applications which we make.

In chronic pelvic pain for which local treatment is usually advised the question arises whether the trouble is not largely mental rather than pelvic. When I used the tampon method of treatment and had patients coming to my office for months, always with temporary, but rarely any permanent improvement, I found their attention so centered on their pelvic organs that the presumed necessity for local treatment continually made them more trouble. Doubtless this trouble could be relieved by Christian Science or some other method of faith cure in two weeks, merely by asserting that it did not exist.

When there is a palpable mass in the pelvis in chronic gonorrheal salpingitis, I feel that operation is always required, but in the absence of such a mass, not once in a hundred instances are the tubes and ovaries sufficiently involved to require either local treatment or operation. The question is, Is it really a wise thing to administer local treatments for local disorders outside of infections like gonorrhea, and does not concentration of the attention on the pelvic organs do more harm even when acute exudate is present, than the possible more rapid absorption which such treatment might bring about?

Dr. John E. Cannaday, Charleston, W. Va.—I have had occasion to open a good many abdomens for pus tubes after salpingitis, that is, old cases some months or years afterward, and it has surprised me to note that in a large number of these cases the tubes have entirely been restored to normal, with the exception of a few adhesions which have twisted them about in various ways.

It seems to me, the treatment of these cases terminates largely in two different ways; in other words, there are two classes

of terminations. In one, there is absolute resolution of the tube; the tube is restored to normal, with the exception of a few firm adhesions. In the other, the adhesions are dense; the tubes are practically destroyed or obliterated, or may be bound down, so that their removal would be attended with difficulty. The ciliated epithelium is completely destroyed, so that they are absolutely functionless. The ovaries are degenerated.

I think Dr. Ill's paper will do a great deal of good because there have been too many tubes removed three or four weeks or months after the initial attack. There are cases in which there is a large amount of pus, where there are symptoms of intoxication, from the absorption of this pus or its toxins. These cases must be incised and drained probably through the vagina, through the posterior cul de sac, or it may become necessary to make anterior vaginal section in order to reach and remove the collection of pus.

Dr. O. H. Elbrecht, St. Louis.—It is very interesting to hear the great differences of opinion on this very important subject and especially the confidence expressed by some of our most esteemed members in the various medicines they apply locally.

Dr. Ill's treatment is *very* conservative and his paper is full of good points, but if it is the fear of a high mortality following operations for acute pus tubes that prompts the medical treatment he advises, then I cannot agree with him. My work brings me a great number of these cases in classes that I consider it advisable to operate on because they have not the time or means to pursue the treatment here advised.

My own experience with the acute forms when glass drainage is used in all cases and special care is exercised in the removal of the pus tube so that the peritoneum will not become soiled (and this can be accomplished in the majority for the adhesions if any at this time are easily separated) convinces me not only that the mortality is exceedingly low, but that they make a more complete recovery than those operated after several attacks.

I select my cases on which to operate during the acute attack not, however, through any fear of increased mortality, but because most of them are compelled to make their own living, and their ability to do so depends upon their health. If allowed to go on without operation most of them will have repeated attacks, thereby producing more adhesions, and the result to be obtained from an operation after several attacks is never as good, due to the dense adhesions at this time, and which usually cause trouble afterwards.

There is another social class, the prostitute, on whom I believe we are justified in operating during or immediately after the first attack.

My sole reason for operating in these classes is because we can avoid further adhesions and promise them better health than by waiting.

I do not wish to be misunderstood because I am advocating

early operation in this social class that I do not believe or know that pus tubes when treated for the peritonitis by rest in bed, and the like, will become quiescent and in some rare instances even permit pregnancy, but this is rather the exception to the rule.

Therefore in the classes mentioned, where the necessary prolonged rest is not obtainable, I believe it best to operate during or immediately after the first attack and thus allow them to resume their occupations uninterrupted by subsequent attacks rather than allow them to go on to a stage where their general health may become impaired from the lack of observation, to say nothing of treatment.

The disappearance of pus in gonorrheal pus tubes depends on the extent and virulence of the infection as well as the amount of rest and treatment than can be secured. If the infection has traveled outside the tubes, and we have extensive and thick adhesions with pus still remaining in the tube, then I believe that attempts to break up these adhesions by massage will keep up the irritation and perhaps light up the condition again.

On the other hand, I will agree with those who say that there are some patients who have no more trouble after the acute infection subsides.

Then there is the other class which all of us see where the tubes become larger and larger, and if you allow them to go far enough before you operate, you will have to take out the ovary as well as the tube, because there is a tubo-ovarian abscess, and it is for this reason that all cases in which operation is deferred should be kept under observation to learn if the inflammatory process is progressive or not, and if you find that it is, then operate and do not temporize with tampons or massage, and I feel sure Dr. Ill follows this plan with the latter class.

I cannot endorse vaginal colpotomy in *acute pus tubes,* for I think it is a bad habit unless you expect to operate at some future date to clean out the pathology you have left by this procedure.

The only time that I think we are justified in using it is in the very large pus tubes of long standing, and where your patient is not strong enough to withstand laparotomy, then I believe it is a life-saving measure and far better than going in above, and when the patient is in condition some months afterward, then you can clean out the pathology to better advantage and with more safety to the patient.

Our position in dealing with pus tubes is as uncertain to-day as our position was in appendicitis six or eight years ago, and we have seen the pendulum swing to both extremes. We all remember when no surgeon would think of operating on a case of appendicitis anything short of the third, fourth or fifth day, and now we all operate as soon as the diagnosis is made on our acute cases, because we know the mortality is less than when we waited and got general peritonitis.

Then, also, there was a time when we used to tide them over the attack and operate during the interval the same as is recom-

mended for pus tubes, and we all know if this could be done in appendicitis we surely can do so with most pus tubes, where the mortality is much lower.

I cannot help but compare colpotomy for pus tube to the cases of acute fulminating appendicitis, where we merely open the abscess cavity, and if the appendix is accessible tie it off, or leave it; and then place our drains.

After such cases are well of their acute trouble, most of us go in a second time several months or even a year later, at which time we perhaps repair a ventral hernia and clean out the remaining appendix.

For the same evident reason I believe it good practice to remove the remaining diseased tubes, or perhaps the infected ovary, in cases of colopotomy for pus tubes.

I also believe that the present conservative position in acute pus will change, the same as it did in appendicitis, only it will take longer.

Dr. Robert T. Morris, New York.—I would like to ask Dr. Ill if he considers that we have danger of sudden migration of gonococci to the tubes in cases in which the disease is pretty well confined to the endometrium at the time the treatment is begun?

Another point Dr. Skeel makes I would like to have Dr. Ill discuss—namely, how it is we can blow hot and blow cold in these cases. Applying the Ill method and the Bier method, it may be we get up the right degree of resistance in two different ways. I hope Dr. Ill will consider those points in summing up.

Dr. Ill (closing the discussion).—There is not much difference between the two methods of treatment, for both increase the supply of blood. I did not understand the President's first question.

Dr. Morris.—If we have, for instance, a gonococcus infection confined pretty well to the endometrium and still persisting there and causing a constant leucorrhea, the gonococci being found abundantly in the discharge, if you apply this treatment by compression at that time, I would like to know if there is danger of sudden migration of the gonococcus again to the tubes?

Dr. Ill.—I spoke of that in my paper by saying that in patients who have repeated attacks we must avoid that sort of treatment, as is shown by hidden and lurking gonococci.

In reference to the remarks of Dr. Hayd, the application of ice must be entirely controlled by the temperature. If the patient has a temperature above 101°, the application of ice is all right. I have said this in my paper (and it will cover the suggestion of Dr. Hayd): "Let it be plainly understood, at the outset, that there are cases which need surgical assistance, and when they need it, it must be done quickly and thoroughly."

I am glad Dr. Frederick and I have been working in the same line, and it is a great pleasure to me that this is the case.

In answer to Dr. Skeel, I believe that tubal abscess can get

entirely well. I have many times felt the convoluted tube, which I supposed contained pus, and it gradually drained into the uterus and the patient got well.

DR. HAYD.—Drain how, when both ends of the tubes are closed?

DR. ILL.—It may drain through the uterus after the swelling has gone down and the tube again becomes patulous.

DR. ELBRECHT.—The cornu is closed.

DR. ILL.—The horn may be closed, but usually it is only temporarily so. If the fimbriated end is not closed you have a bad case, because there will be frequent leakage into the peritoneum. It is difficult to say whether we can stop the disease from progressing upward. I do not believe any man will say that any sort of treatment has succeeded in stopping the disease from going up the uterus or tubes.

With regard to the remarks of Dr. Elbrecht, I have many times endeavored to reproduce the gonococcus in a patient after I thought she was quite well by the application of nitrate of silver fused on a probe. If there is any gonococcus about, this will bring on a new attack. I have not always succeeded. When I have a patient who I think has recovered from the disease, but still fear that gonococci may be hiding in some fold of mucous membrane, I apply nitrate of silver, fused on a probe, into the urethra or cervix. If there are any gonococci present enough irritation will have been produced to again bring them to the surface. If a new crop does not follow such an irritation I take it that there are no gonococci present.

I do not know of anybody's work that I respect more highly than that of Professor Olshausen. I had occasion twice to refer patients to Olshausen with chronic pelvic trouble. Both were prominent women, and they came back at the end of the year after Professor Olshausen had treated them by massage, to all appearances entirely well, and I would not dare say that any manipulation which Olshausen carries out is pernicious. Again, in replying to Dr. Elbrecht, I wish to say that appendix infection and gonorrheal infection are two entirely different pathologic conditions. One, we might say, is an infection with a comparatively mild germ, while the other is an infection with a deadly germ, and the two conditions must be treated differently. An appendix infection should always be considered operative, while the other is not always an operative condition.

CONSISTENCY IN ASEPTIC SURGICAL TECHNIQUE.

BY

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THE subject of this paper may seem rather elementary for this Association of practical surgeons; nevertheless, success in all surgical work, as in the usual affairs of life, depends upon the care and exactness which we apply to the details of our work, and if we look back upon that period prior to the development of aseptic precautions in surgery, and compare it with present-day methods, and the results of those days with the results of the present time, we can better appreciate the incalculable blessing that the research and study of asepsis, as applied to surgical work, has been to mankind. While, of course, it has increased the amount of work prior to and during the operation, it has so lessened the mortality and morbidity, as well as the after care, and especially the anxiety over our patients, that surgical work to-day is one of the most satisfactory of professions, and is rapidly coming to what might be called on exact science.

It is not my purpose to deal with the many minute details of asepsis as applied to surgery, but rather to invite attention to some inconsistencies which seem to exist, and plead for a more uniform and consistent standard, for, in the words of that great master, Professor Kocher (Kocher's Operations Lehrer, Fifth Edition), "Alle Kunst des Chirugen ist umsonst wo die Infection nicht ansgeschlossen ist." (All the art of the surgeon is in vain if the infection is not prevented from gaining entrance.)

It has been my experience in observing the work, and noting the percentage of mortality among surgeons of experience and equal grade of standard in surgical ability, that there exists among them a difference in mortality rate and morbidity rate which, considering the fact that these men are equally gifted in surgical skill and judgment, must be due to consistent and thorough aseptic technique upon the one hand and less skilled and inconsistent technique on the other. How often do we hear of certain careful and painstaking surgeons having a run of from 100 to 300 operations without mortality, such as Dührssen with his 267

abdominal and 500 gynecological operations without a death, Kocher with from 300 to 500 thyroidectomies without either loss of life or failure in obtaining primary wound healing, Moynihan, the Mayos, and others with their long series of stomach, intestinal, and gall-bladder cases without unfortunate results, or the work of Jacobs, Kelly, and Robb in the gynecological field! On the other hand, equally good surgeons in every respect, except in aseptic technique, will have two, three, five, or greater percentage of mortality in similar lines of work.

I have long believed that this difference constitutes the difference between consistent and inconsistent asepsis. In making this criticism I would not underrate or minimize the great necessity for speedy and rapid surgical work in the interest of the patient, for, next to careful asepsis, speedy work, coupled with thoroughness, has done more to lessen mortality than any one other thing, and I believe that all operative work should be, in the interest of the patient, conducted as speedily as is possible, consistent with efficient and careful surgery. An operator should always endeavor to be speedy, but never hasty or careless. Speed should be the achievement, not the aim, of the operator, and is only obtained after years of experience in the operating room, and that coupled with an intimate and perfect knowledge of anatomy.

Can there be anything more lamentable or associated with greater risk to the patient than an unskilled, inexperienced operator endeavoring to perform operations with the same speed as one who has had years of experience and training? Neither would I underrate those great studies with reference to the resistance to infection, such as phagocytosis, and the like, which have done so much for us in our knowledge of how to handle already infected cases, but I contend that in all clean and uninfected cases, as well as those already infected, we should be so consistent in our asepsis that the former group of cases will not be compelled to depend upon their leukocytes for their recovery, and in the latter class of cases a new element of danger in the form of a mixed infection will not be introduced.

I also contend that a surgeon should so perfect his work that he would be able to perform it equally as well amidst the primitive and uncertain surroundings of a country farmhouse or city tenement, as he would be surrounded by the equipment of the operating room of his hospital; for, as we begin to realize more and more the great danger in contact infection, and the minimal danger of air infection, so do we have less regard for the

environment of marble and mosaic and more regard for the things which come into direct contact with the wound; and so does it become incumbent upon any surgeon who does work at various places distant from his own operating room to perfect a technique for that work which shall be as consistent and thorough as the technique at his hospital. To do this, however, he must develop a systematic plan and use his general hospital, or, better yet, his own well-governed private hospital, as a starting point, having there everything required for the operation thoroughly and freshly sterilized, packed in cases, lined by sterile sheet, and so arranged as to be dustproof when closed. All this should be done by a competent nurse, whose duty it is to not only see that all materials for the operation are properly prepared, sterilized, and packed, but who shall go along to the place of operation and attend to the unpacking and placing of all instruments and materials. Such a nurse easily becomes your first, and often only assistant, except the anesthetizer, at such operations, and should be one who has had years of experience in surgical work and surgical asepsis. If she is conscientious and honest, her services become invaluable, and she is more consistent in the aseptic measures than a male surgical assistant, who may be thinking more about the diagnosis and operative technique than about the aseptic technique and how to transform the ordinary kitchen, parlor, or bedroom into a safe and convenient operating room.

To my mind nothing is more inconsistent than to see a surgeon operating at a distance with materials prepared and packed by some dealer in surgical supplies, or by the force in some hospital, who have no further interest in the case than merely getting the equipment ready. In my own work the question of all assistants is eliminated as much as is consistent with doing proper surgery, for I believe that each additional assistant is a potential source of infection; hence, to do the best and cleanest work, these assistants should not be frequently changed, but should remain with the operator for years. Here again is the well-trained nurse a better assistant, for it is possible to retain her services over many years; whereas the young surgeon with ambition will only serve as an assistant for a moderate period before he becomes restless and anxious to start out for himself.

The surgeon who occupies a position as a teacher or instructor in a medical school connected with a hospital where medical students are instructed in surgery, cannot be as consistent in his asepsis as the one who has no such position, from the fact that he

must needs, for the sake of instruction, have a constantly changing force of assistants, and no sooner does he get one force thoroughly competent than he is compelled to relinquish them for the sake of teaching others. As we observe the work of those surgeons who have the least amount of mortality or morbidity from infection, we are impressed with the fact that they are men who do their work with as little change of assistants as is possible, and who work in institutions where there is none, or only a moderate amount of teaching, and who have, by reason of owning or controlling the institution, absolute domination over the operating room.

As a proof of this assertion I would refer to the work of Dr. Price of Philadelphia and that of the Mayos, the latter men working as they do with trained sisters, who have been with them for years as assistants, and trained nurses as anesthetizers who have become so proficient by long experience that their equal is hardly to be found in the medical profession. This, to my mind, constitutes one of the great reasons why these men can give us such long, uninterrupted series of operations, unbroken by death or infection.

On the other hand, how impossible it is for the surgeon who has a frequently changing force of assistants, who is in control of the operating room at certain hours only, and knows little of the amount of infection that has been distributed throughout that room during the preceding hour, to be able to do as consistent aseptic work. The wonder is that they do not have more sepsis than they do, and it is not infrequently that we hear of some patient being operated on at some such institution for a condition in which no infection exists, and in a few days the news of the death comes to relatives and friends, who are told that it could not have been prevented, as "blood poisoning set in," whereas we know that blood poisoning did not "set in," but was put in at the time of the operation.

Consistent asepsis demands, to my mind, the necessity of always wearing sterile rubber gloves during the performance of operations, the ease with which one becomes accustomed to them being marvelous; even that diminished sense of touch, which first exists, seems to be dissipated in time. Great care should be exercised that no glove with a rent or hole in it be worn, for I am afraid that the necessary expense of gloves renders it probable that at times they are worn long after their usefulness has passed and after they have become an absolute source of danger. But

important as the question of wearing rubber gloves during operations is, I believe that it is equally, if not more important that every operating surgeon should protect his hands from coming in contact with infectious material between operations by the use of thin rubber gloves when making all examinations of infected wounds, post-mortem examinations, dressings, and in examinations of vagina, rectum, and throat. By so doing we, to a very great extent, eliminate the danger of our hands becoming contaminated with other organisms than the staphylococcus albus, their usual inhabitant, the latter according to some excellent authorities (Kocher, Lomz, Flock) having very little pathogenic importance.

Certain it is that the pathogenic organisms which are implanted upon our skin and rubbed or pressed into the ducts of sweat glands and about the hair bulbs at the time of examinations of infected areas are the most important source of danger; hence the necessity of wearing rubber gloves between operations to protect the hands from becoming contaminated by such virulent organisms—that is, as far as is possible—and this is to my mind the most essential secret of hand sterilization. And in conjunction I would strongly advise the careful and painstaking care of the hands by washing, scrubbing, and care of the nails upon the evening prior to the day of operation, as well as before operating, and to my mind the use of all nail cleaners, such as orange-wood sticks, and the like, are evidences of dirty conditions, for anyone doing surgery, or assisting at surgical work, should wear close-cropped nails incapable of harboring dirt beneath them.

Hands should be scrubbed with brush, soap, and running water until they are clean, and not until the hands upon a clock have measured off a certain portion of time. This plan, followed by a careful scrubbing with a 65 or 70 per cent. alcohol, the latter being carefully worked into every portion of skin and allowed sufficient time to get into the sweat glands and hair bulbs, affords an efficient sterilization, which can be followed by other antiseptic solutions if so desired by the surgeon.

The foregoing precautions constitute proper prevention of infection from the hands of the surgeon. I wish we could do as well in sterilizing the skin of the patient, for here exists the weak point in operative work, as it does not appear that any of the protective tissues which have been devised have come into any very uniform or practical use. Nevertheless, after a thorough cleansing and sterilization of the patient's skin, great care can be exer-

cised in limiting the amount of skin exposed and in keeping the wound edges covered with gauze; also in being careful to avoid using the same knife that has been used for skin incision for any of the deeper work, or. to allow ligatures or sutures to come in contact with exposed skin. In these ways it is possible to limit and almost overcome the danger of implanting infection from the skin to the deeper layers.

One very common cause of danger consists in improper management of sterilizers by those who do not thoroughly appreciate the necessity of packing the instrument so as to permit a proper penetration of the steam to all of the contained packages. Certainly we cannot expect proper results unless the instrument has a proper amount of space for steam between the packages of dressings and other articles which it contains. It is important that we should use freshly sterilized goods, direct from sterilizer to operation, and in this way prevent the possible evil consequences from contamination during an interval between the time of sterilization and the time of use. When possible, fractional sterilization should be practised, but this is not always necessary. Yet in my own work we always sterilize twice the gauze, sponges, dressings, towels, and the like, which are to be used upon clean abdominal, pelvic, or joint cases, and we have never had occasion to regret the moderate increased amount of work that this occasions.

The question of sterile ligature and suture material is one of vital importance, and should be controlled entirely by frequent bacteriological examination of the materials we are using. For the past two years I have used the iodine catgut (Bartlett process) in all cases where infection exists at the time of operation, but I much prefer in all clean cases to use silk or linen, knowing as I do that there can be no question of its sterility, that being provided for by steam sterilization just prior to the operation, and I have never had occasion to regret using linen or silk in all of my clean work; but in using it I am very careful to avoid drawing it through hands that are not thoroughly gloved, lest by doing so it becomes infected.

In closing wounds great care should be exercised to properly approximate tissues of a similar character and avoid dead spaces which might later become the seat of infection, using a strong but light subcutaneous silver suture wire for approximating the skin edges. In all cases where there is any subcutaneous oozing, or where it is impossible to be assured that all dead spaces are eliminated, a small Kocher glass drain is slipped between the

edges of the *closed* wound and removed the following day, for to get primary union and freedom from infection it is necessary to have well *coapted, clean,* and *dry* wounds. All of these details require time and perseverance upon the part of the operator, but they constitute more complete aseptic technique, and if coupled with painstaking and thorough surgical work it will bring to each one of us a consciousness of having done our part well, and we will be rewarded by a very low, perhaps only fractional, mortality and an easy and uninterrupted convalescence on the part of our patients.

DISCUSSION.

Dr. Robert T. Morris, New York.—One cause for inconsistency in technic is found when the surgeon operates away from home. Most men whom I have invited to my clinic usually show some weak point they would not have shown in their own operating room at home. They are not quite consistent in carrying out their principles.

I think this paper is worthy of a good deal of discussion, and I hope it will be freely discussed.

Dr. John E. Cannaday, Hansford.—I wish to point out one or two inconsistencies very often noticed in operative work. Many of you have doubtless observed very many operators who, in wearing gloves, frequently put the glove on in such a way that the bare hand cuts the outside of the glove. The outside of the glove in the operation is supposed to be perfectly sterile, yet in trying on the glove the operator slips the hand over the fingers of the glove, and in so doing contaminates its outside. I have seen a few operators of large experience do that.

Again, many of you have doubtless seen operators wear gloves, and at the same time wear short-sleeved gowns. These come in contact with the instruments, with the skin of the patient or bowels. That is an inconsistency.

DECIDUOMA MALIGNUM.

BY

MILES F. PORTER, M.D.,

Fort Wayne

UNTIL comparatively recently the term deciduoma malignum was used to designate all malignant neoplasms originating at the placental site, but since the investigations of Sänger, Marchand, Teacher, and others, we know that some of these growths are carcinomatous, some sarcomatous, and some, perhaps, a mixture of both. Hence it would serve better to name each specimen according to the microscopical findings. Inquiry into the exact nature of these tumors is, however, more interesting than profitable. The important thing is to be able to recognize early the malignant nature of the trouble, when a complete hysterectomy will offer the patient a good chance for permanent recovery. An important fact to be remembered is that metastases occur equally early in all types of the disease via the bloodvessels. This fact emphasizes the especial importance, in this class of malignant neoplasms, of making every endeavor, by means of clamps, ligatures, and a minimum amount of handling of the tumor, to prevent dissemination of the cells by the veins during the operation.

It is a well-known fact that not infrequently microscopists disagree as to the malignancy or nonmalignancy of a neoplasm, each basing his opinion on an examination of the same specimen. It is also well known that specimens removed for examination prior to operation may fail to show malignancy, when specimens from other areas leave no doubt as to the malignant nature of the growth. Histologically, all chorioepithelial proliferations are malignant; hence, a prognostic valuation of the microscopic picture is at present impossible.[1] These facts, taken together with the further one, that the disease under consideration may get beyond all hope of cure within a few weeks, warrant the statement that too much importance may be attached to the microscopic findings, and that, in case the clinical signs point strongly toward malignancy, hysterectomy should be performed, even though the microscopic findings are negative.

[1]Schmauch: "Surgery, Gynecology, and Obstetrics," Sept., 1907.

It may be true that the following of this advice may result in a few women being unnecessarily deprived of their uteri and appendages, but is not this better than that one should die as a result of delay in diagnosis and operation? The following case is herewith reported as illustrating some of the foregoing points and as the basis of some further remarks.

Mrs. L. R., age 40, married, four children, consulted me March 23, 1907, complaining of pelvic distress and great loss of strength. She was quite anemic. Menstrual periods had been regular, the last occurring one week before her visit to me. This period was

Fig. 1.—Section Made Through Center of Uterine Wall Showing Infiltration of Muscle.

peculiar, in that it came on with "a gush of blood-stained water," but in all other respects was normal. Her physician, Dr. L. P. Drayer, had noted a tumor in the hypogastrium, and had referred her to me. On examination I found the uterus as large as my fist, quite soft, and tender to pressure. There was no vaginal discharge. I could not satisfy myself as to the diagnosis, and sent the patient home with the request that she report again in a week. This she did with the report that the pelvic distress and weakness were greater. On examination it was also found that the uterus had perceptibly increased in size, and that the anemia was more pronounced. There were no new developments.

The patient was sent to Hope Hospital, March 31, 1907, where the following record was made: "Family history, negative. Has

had all children's diseases, and six years ago had quite a serious illness of which she does not know the nature. Has had pain in left pelvic region for six years. Since last June this has been severe. 'Noticed a tumor' in the region of the uterus 'about a year ago, which has grown considerably in the last few weeks.' Complains of pelvic pain in left side, and weakness." Examination: "Anemic. There is a grumous vaginal discharge which came on a few hours after she reached the hospital. The uterus is as large as a large fist, and perceptibly larger than when I first examined her, a week ago. The os is not open, the cervix

Fig. 2.—Section Through Uterine Wall Showing Invasion of Muscle by Cells.

not soft, and there are no uterine contractions." During the two days prior to the operation the pulse ranged from 80 to 94, and was soft and weak. Temperature normal. On April 2 (two days after entering the hospital and ten days after she first consulted me) I carefully removed a fragment from the uterine cavity with the curet, under ether anesthesia. The specimen removed was as large as the tip of my index finger, reddish, and semitranslucent.

The specimen was given to Dr. Rhamy for microscopic examination, the patient taken back to her room, and another brought in for operation while awaiting Dr. R.'s report. The specimen was reported as malignant and probably "lymphendothelioma." Accordingly, the patient was returned to the operating room and

the uterus and appendages were removed by the abdominal route. The peritoneum was closed over the vagina. The abdominal wound was closed in the usual way and a gauze drain placed in the vagina. The patient made an uninterrupted recovery, was discharged April 28, 1907, and remains well to date.

An examination of the uterus after its removal showed it to contain two amniotic sacs, one of which was separated from the uterine wall, the other attached, and neither ruptured. The uterus also contained a quantity of material of the same appearance as the specimen removed by the curet. The uterine walls were everywhere abnormally thick, soft, and friable, especially at the placental site. Dr. Rhamy's report on the specimen re-

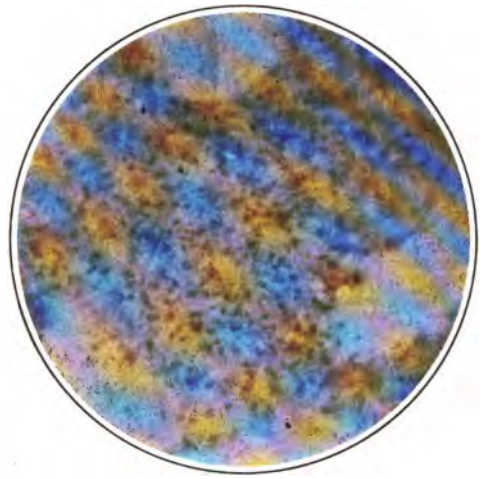

Fig. 3.—Section through tumor.

moved at the operation is as follows: "The decidua from a twin pregnancy is thickened, soft, fragile, and spongy, with areas of diffuse bloody infiltration. The decidua is diffusely hypertrophied, there being no sharp limitations of the cellular hyperplasia. There is general infiltration of the uterine muscle by the syncytial cells and cells from the layer of Langhans. Many giant and many small cells are seen especially along the blood sinuses with the result that the uterus is doughy in consistence. Diagnosis, decidua malignum, syncytioma malignum." The gross specimen is herewith presented for your examination, together with photographs of the microscopic sections. (See Figs. 1, 2, 3, 4, and 5.) It will be seen from the specimen that I underestimated the size

of the uterus at the examination prior to operation. The size has been considerably reduced and the consistency increased by the solution in which it has been kept. A couple of the slides were sent to the Columbus laboratory, from which the following report came: "We find no evidence of syncytioma in these sections. The superficial area is composed of glands and decidua. This zone is greatly thickened over the normal. This thickening is due to glandular proliferation and dilatation, and to decidual growth. The decidual and glandular zones show no disposition

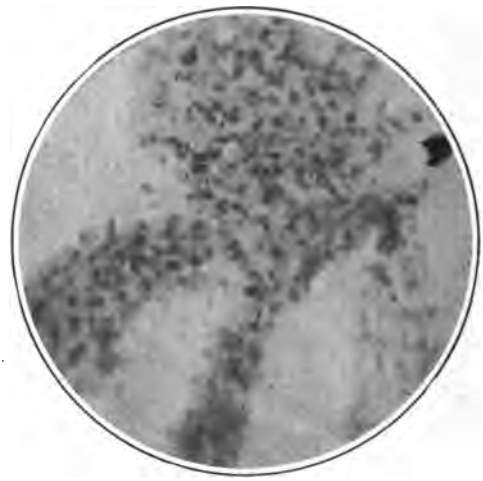

Fig. 4.—Section through tumor.

to invade the underlying zones in the areas from which these sections were made."

Upon the receipt of this report another slide was sent to them, together with a history of the case, with a request for a pathologic diagnosis, and the following report was received from Dr. Evans: "I cannot find invading cells. The abundance of dilated glands is very much in evidence. I do not think that the sections indicate chorioepithelioma or malignant deciduoma."

That the uterus in this case was abnormally large, soft, and friable, there can be no question of doubt. That the woman was seriously ill is equally certain. That there was an abnormal glandular and decidual growth both microscopists agree, but the one says that the trouble is malignant, and the other that it is not malignant. The question naturally arises, what is the essential character of the trouble in this case? The hyperplasia might be

caused by infection, but the woman was clearly not septic, and the microscopic evidence of an inflammatory process is entirely wanting. A nonmalignant glandular and decidual growth such as obtained in this case, with death of the new-formed cells and autointoxication arising therefrom, offers a possible explanation for the symptoms and conditions found, but such a combination of cause and effect has not been described, to my knowledge, in medical literature. Personally, I believe that the correct diagnosis in the case reported is chorioepithelioma malignum. If this opinion be correct, the fact that the diagnosis was made during pregnancy, and that the latter was of the twin variety, makes the case unusual, if not unique.

In conclusion, I want to say that with increasing experience my conviction grows firmer that the clinical and macroscopic findings in suspected malignancy should be given equal, or even greater weight than the microscopic findings, and that when the former point strongly to malignancy the patient should be given the benefit of the doubt, and a radical operation performed, even though the microscopic examination is negative; for it is better that the patient live and the diagnosis remain in doubt than that she die with the diagnosis decided. A free and frank discussion will be appreciated.

DISCUSSION.

Dr. John A. Lyons, Chicago.—With reference to the decision given by Dr. William A. Evans, as quoted by Dr. Porter in his paper, I will say that, while Dr. Gehrmann and Dr. Wesener, of the Columbus Medical Laboratory, are mighty good pathologists, they generally refer their difficult cases to Dr. Evans before giving a decision as to the diagnosis in a given case from the specimens submitted to them. In the case I reported of Dr. Small, a professional friend, I took a specimen of multiple sarcoma of the liver to the Columbus Medical Laboratory, and there was not one of the associates of Dr. Evans who would positively make a diagnosis. Every one of them thought from the clinical history and examination that the growth might possibly be of a benign character, and all hoped that Dr. Small would soon get well. We telephoned for Dr. Evans, who is now our Commissioner of Health of Chicago. He came over and in less than ten minutes said: "Lyons, your patient is doomed." That patient did not have a good symptom from that time on, and while making the diagnosis had no effect on him, I mention it to show Dr. Evans's ability. It was a malignant

growth. My friend died, and naturally I have great respect foı Dr. Evans's diagnostic decision.

Dr. Porter (closing the discussion).—In reply to the remarks of Dr. Lyons, Dr. Evans is not only a personal acquaintance, but personal friend of mine, and Dr. Lyons, nor no other man, has any greater regard for the ability of Dr. Evans than I have, but, like all men, he is not infallible. The point I wish to emphasize is this: chorionic growths are histologically malignant; but there is a time in the commencement of a chorioepithelioma when there is no muscular invasion, which is the only one point that marks it as malignant. There must be a time in the early development when there is no muscular invasion that warrants the microscopist in saying that it is malignant, and at that time, when there is this lack of muscular invasion, there are symptoms which warrant a clinical diagnosis of malignancy, and when the symptoms do warrant a diagnosis of malignancy, as they did in my case, the operation should be done. The only further proof that can possibly obtain as to malignancy in this case would be a return, and that in its turn would weaken my argument, that it was wise to remove it under the circumstances, for, notwithstanding the early operation, it was yet too late to permanently cure the patient. Had I not had faith in Dr. Evans I would not have reported this conflict of authority, and it was not with a view of criticizing him that I reported the case.

AN UNUSUALLY LARGE DERMOID TUMOR OF THE OVARY.

BY

WILLIAM H. HUMISTON, M.D.,

Cleveland.

NAME, Mrs. G., Wooster, Ohio, age 51. History—Married 30 years. Has given birth to two children at term, the youngest 17 years of age. No miscarriages. Occupation, housework. Her first menses appeared at the age of 13 years, occurred regularly, without pain, and the duration was four days. Her last menstruation occurred during January, 1906. She has had a slight leucorrheal discharge for a great many years. General appearance bad; very much emaciated, complexion sallow. Sleep disturbed and very restless for past six weeks. Appetite and digestion poor. Bowels constipated; urination frequent, but painless.

She was referred to me, and came complaining of the following symptoms: general distress and weakness from a large growth in abdomen, which she first noticed seven years ago in left side, where a mass could be felt. The pain was intermittent, but the growth steadily increased until the abdomen was much larger than pregnancy at term, when she entered St. Vincent's Hospital. Obstinate constipation, pain in right side extending down into pelvis, backache, and vomiting frequently after partaking of food, are the prominent symptoms.

As before stated, the patient first noticed the growth seven years ago, but did not pay any attention to it, until two years ago a physician was called, who advised immediate operation. This was refused. Her general previous history is good.

Family history.—Mother died from cancer of stomach at age of 62; father of old age; two sisters and four brothers living and in good health.

The physical examination of pelvis and abdomen revealed a partial tear of the perineum, vagina roomy, the cervix could barely be touched with the finger, and all the vaginal vaults were free from encroachments. The uterus and appendages seemed to be lifted out of the pelvis by the large, fluctuating elastic growth

that reached from the pubes to the ensiform cartilage. The flanks were resonant. Dulness over distended abdomen was general. A ventral hernia as large as an orange, with an erodel spot, the size of an almond nut, was observed. Temperature, 99 2-5°; pulse, 90.

Blood examination.—Reds, 4,300,000; whites, 20,600; hemoglobin, 50 per cent. to 60 per cent. Urinary analysis—Color, brown; sp. grav., 1,020; reaction, acid; albumin, slight amount. Sugar—Epithelium, few. Leukocytes, few. Diazo—Phosphates amorphous and bile. *Casts, granular,* and *hyaline,* many.

Diagnosis.—The symptoms in this case, together with the his-

Dermoid Cyst of Ovary. Weight 31 lbs. Large ventral hernia with erosion of skin.

tory and examination rendered the diagnosis of ovarian cyst with suppurating contents, quite probable, hence operation was advised. This was readily consented to by the patient and family. She was as anxious now to have it done as she was decided in her opposition to it for many years, owing to the serious illness of her son with chronic Bright's disease, who she said needed her care and attention.

Operation, October 31. 2 P.M. Ether anesthesia for one hour, 10 ounces being used, drop method. As soon as patient was placed on the table the submammary injection of normal sterile saline solution was begun and kept up until two liters had been

introduced. Incision in median line between ventral hernia and pubes. Adherent omentum in hernial sac was freed, ligated, and cut. Trocar inserted into cyst, which had a thick wall. The contents was cream-colored, and pea soup in consistency. The incision was enlarged and the hernial sac removed by an oval incision. The tumor and the remaining contents were delivered and found to contain four balls of hair and several collections of teeth. It was found to arise from the right ovary, and the sac was closely adherent to the side of the enlarged uterus to the fundus. Supravaginal amputation of the uterus was made and the tumor sac and uterus removed together.

A malignant looking mass, the size and shape of a turkey egg, was found in the colon, at the junction of the sigmoid and rectum, with considerable fecal accumulation above, that could not be forced through with moderate pressure. Another mass, equally large, was found in the ileum to right of median line, also the third one, on lower border of liver. It was not deemed advisable to prolong the operation under existing conditions, and the cervix was closed, and over this the peritoneal edges were united, leaving the pelvis entirely free from raw surfaces. The abdomen was flushed freely, four liters of saline solution being left in the abdominal cavity, and the incision closed. Patient left the table in good condition. Color of mucous membrane, red; pulse and respiration good.

She had a good night; no vomiting and free excretion of urine, which contained albumin and many granular-hyaline casts. Pulse and temperature next morning, 96° and 99, respectively. Complained only of a moderate amount of pain, and stomach retaining water, frequently given in small quantities. About noon the nurse noticed the pulse growing weaker. In spite of special heart tonics and stimulants administered hypodermatically, the patient expired at 4 P.M., twenty-four hours after operation. There was no change in temperature and no symptoms of hemorrhage. Autopsy was not permitted.

This dermoid tumor is unusual as to size, but very few having been reported as large. In looking up the subject, but three were found giving exact weight.

Corealiagant in *Review de Normandie* reports a dermoid cyst weighing 50 kilos—110 pounds.

Keith, 1896, one weighing 100 pounds.

Ullman, *Wiener Med. Press*, 35 pounds.

PATHOLOGICAL REPORT BY DR. J. H. HEWETT, PATHOLOGIST TO ST. VINCENT'S HOSPITAL.

Mrs. C., age 51. Dr. Humiston.
October 31, 1906.
Pathological No. 825.

Clinical Diagnosis.—Ovarian cyst; suppurating contents.

Pathological Diagnosis.—Malignant dermoid cyst of the ovary; carcinoma with metastases into the uterus.

The specimen consists of a uterus and an attached cyst sac. The uterus is irregular in shape, being considerably larger on the right side than on the left, and its surface is somewhat nodular in appearance. Its consistency is, in general, firm, but on its surface, appearing as white, round, discrete, and confluent points, measuring from 1 to 3 mm. in diameter, are numerous areas that are soft and slightly fluctuating. A section over one of these small areas shows it to be a small cavity filled with white, necrotic, creamy material.

The uterine wall measures 2.5 cm. in thickness. The mucous membrane is of a grayish white color. Extending from the top of the fundus and the lower portion of the cervix are polypus growths about 1 cm. in length; otherwise the mucous surface is fairly smooth. The left tube measures 8.5 cm. in length. The mucous membrane appears normal. On the posterior surface of the tube are two small, irregular-shaped, translucent bodies, situated near the fimbria.

The left ovary measures 2x1x.5 cm. Its surface is of a white color, markedly contracted and furrowed. It is very firm in consistency, and on section is seen to be very sclerotic and slightly cystic. The left tube is obliterated and its course can, with some difficulty, be made out as a dense fibrous cord. Arising from the lateral and posterior surface of the uterus, and adherent to it by dense fibrous adhesions, is a large sac, 32 cm. in diameter. In the adhesions, and on its surface nearest to the uterus, are several round, white areas, like those described on the surface of the uterus.

The external surface of the cyst sac is, for the most part, smooth, but in certain places it has a very contracted and shriveled appearance. A few clear, translucent cysts may be seen in the wall. The thickness of the cyst wall varies from 1 to 5 mm. The inner surface of this wall is thrown into numerous folds. These are of a diffuse red color and show numerous hem-

errhagic points. In the lower part over the portion attached to the uterus is an area about 5.5 cm. in diameter, surrounded by an elevated ring of tissue. Over this area there are several scales of bone and small pieces of cartilaginous tissue. A few centimeters above this area is another fringe of tissue, from which numerous hairs are growing, and in it may be felt a piece of bone about 3 cm. in length. On this bone is a cluster of three teeth, two bicuspids, and one canine.

The cyst with its contents weighed 27 pounds, without the escaped fluid which was soaked up in sponges, and was estimated to weigh 4 to 5 pounds. Its contents consisted of 6 to 7 liters of light grayish-green, creamy fluid. A piece of bone 4 cm. in length, containing a cluster of five teeth (three molars, one bicuspid, and a wisdom tooth), a single canine tooth, a molar and bicuspid tooth bound together, a large amount of hair that was rolled up into four balls, were removed, together with, and in addition to, the fluid.

Microscopical Examination.—The fluid from the cyst showed it to consist of fat droplets, flat, epithelial cells, broken-down cells, red blood cells and a few leukocytes.

Cyst wall measures about 4 mm. in thickness, and is seen to be made up of from two to four separate layers of about the same thickness, respectively. The inner layers are made up of connective tissue that has undergone hyaline necrosis, and has completely lost all the nuclei. The outermost layer in its outermost portion shows definite connective tissue bands with an arrangement like that seen in arteriosclerosis. Along the inner part of this layer the fibers have undergone necrosis, and are coarser, and less numerous, markedly resembling fragmentation myocarditis. The picture here suggests that the original tumor was made up of several cysts, but in the process of growth the present cyst gained the supremacy. The other cysts were thus compressed and only their walls left in the common wall of the exhibited cyst.

Hair covered projections from the cyst wall, into the cyst cavity, were observed. These are seen to have a basal structure of dense connective tissue. On the lining surface is seen a layer of stratified flattened epithelium, in many places projecting as villi into the cavity. There is little if any evidence of infiltration of the subjacent tissues with these cells in the portions examined. They are quite loosely arranged. Examination of other portions of this tissue show it to be made up almost entirely of loose necrotic

material, with an occasional single or clump of round, flat, epithelial cells.

Abscess cavities on the wall of the uterus. The wall here is seen to be made of uterine muscle surrounding areas of flattened epithelial cells, which are definitely and unmistakably of a carcinomatous type. These cells are apparently more of a growth in lymph spaces than infiltrations into and between the muscle fibers. The question arises, are these carcinomatous areas due to an extension along the lymph channels of cells from the lining membrane of the cyst sac, or are they only the result of epithelial anlage in the uterine wall. At present I think we are not able to definitely say which is the case. By taking sections from successive portions connecting the uterus and the cyst, an effort is to be made to determine this point. The fact that these carcinomatous areas are all confined to the upper portion of the uterus and to the same side as the cyst, and occur also in the adhesions between the cyst and uterus, somewhat favors the first view. Still, it is possible that invasive growth may have taken place from the uterus toward the cyst as readily. The areas were at first considered to be the result of a carcinoma of the cervix, the picture being so strikingly like that seen in carcinoma of the cervix. But sections of the cervix show only such changes as are normally seen in patients of this age. The mucosa of the fundal portion of the uterus is also of senile type.

Left tube.—Obliterated and represented only by a fibrous cord. Left ovary contains several corpora fibrosa, its stroma is dense and firm, its bloodvessels thickened and sclerotic.

DISCUSSION.

Dr. John A. Lyons, Chicago.—I assisted a surgeon in operating on one of these cases of dermoid tumor of the ovary, but the patient died. The doctor who performed the operation never had the courage to report the case. We measured the contents of the cyst afterward, and the material weighed forty-two pounds. I thought it might be well to mention this case, so that it may appear in the proceedings.

The President.—What predominating tissue did you have in this case?

Dr. Lyons.—I could not say; I did not follow up the history of the case afterward.

Dr. Howard W. Longyear, Detroit.—These tumors of the ovary are always exceedingly interesting to the operator and

to the pathologist. At one time, in one year, I had the good fortune to operate upon a number of cases of dermoid tumor of the ovary, but since that time I have only seen one. In this case the tumor was situated in the anterior wall of the uterus. I do not recall ever having seen the tumor so situated in other cases, except this one. It was just above and to the right.

DR. ROBERT T. MORRIS, New York.—I was in hopes some one would discuss the point about removing some of the fluid which in tumors of this class may get into the peritoneal cavity.

Some years ago I took great pains to exclude the fluid contents of such a tumor from the peritoneal cavity, and spent much time in getting the fluid out after it got in, as it is well known that some of these cysts will rupture, and we may have a good many pints of fluid in the peritoneal cavity. But of late years I have made it a rule to spend very little time in getting these fluids out, unless the case happens to be one of acute infection at the time of the operation, and it seems to me that fluids are quite benign unless they happen to carry sebaceous material, or hairs, or some of the harder embryonic elements.

DR. HUMISTON (closing the discussion).—With reference to the remarks of Dr. Morris, I will say that it was an easy matter to prevent the escape of fluid in this case into the peritoneal cavity or abdomen, because the incision was very large and well packed off with gauze. There was so much fluid in the tumor that a great deal of it was taken off by use of the trocar, and the remainder of the contents removed with the tumor sac, thus preventing contamination of the abdominal cavity. Heretofore we were taught that the contents of these dermoid cysts were rather infectious and that, therefore, we should avoid soiling the peritoneum, if possible. My experience, heretofore, with dermoid cysts has been with the small, hard dermoids. I was completely taken off my guard in this case. My diagnosis was of ovarian tumor and twisted pedicle, with suppurative contents, and I never dreamed that I had a case of dermoid tumor. It was a mistake, however, that may be readily made, and I do not feel that I ought to be censured for making the wrong diagnosis.

The indications for operation were clear and distinct, and it only goes to show that if these cases are seen and operated on early, we can operate safely and successfully. Seven years ago it would have been easy to remove this tumor, when it was about the size of a cocoanut, but she was a woman who feared operation and would not consent to it, and when the case was called to my attention about two years prior to the operation through some correspondence with the family physician, there was an absolute refusal given to operate, but the mother's love for a son that came home with chronic Bright's disease, and she finding herself unable to wait on him and attend him, as she desired to do, influenced her to sacrifice all of her previous opposition to an operation and consented to it. I operated, but the carcinomatous masses that I found in the intestine in two different places and

on the liver made it impossible to complete the operation with any hope whatsoever that she would live. The death was a very peculiar one to me. She had only an ordinary amount of pain the first night after operation. She slept some. There was no vomiting. The next morning she had a temperature of 99°, pulse 96, of good, fair volume. She spoke to me, and wanted to know whether she could not have something to eat, and I said no, not for twenty-four hours longer. While I was operating later that morning, I was informed that she was doing badly. I hurriedly finished the operation I had undertaken, went to her thinking she might have a hemorrhage, although I could not see how that was possible. There was no evidence of hemorrhage; she was not in a state of collapse, but had a weak heart and a constantly ascending pulse, which continued until 4 P. M., when she died. There was no symptom that indicated hemorrhage, and the only thing I can think of was delayed shock.

Dr. C. C. Frederick, Buffalo.—Can any one tell me why so many of these cases of intraperitoneal carcinoma, that look as though they might be operative cases from the symptoms, and yet, when we make a simple exploratory incision and close the abdomen, almost die in the first week, not from septic peritonitis, but they simply sink away and die?

Dr. Robert T. Morris.—Is it not possible that Dr. Humiston's patient bled into her own veins as the result of taking off the abdominal pressure?

Dr. Humiston.—That would have been manifested the first two or three hours after operation. She was apparently as well as any case after such an operation until the next morning. She was able to converse, and said she was thankful for her son's sake that she had been relieved of this tumor. She felt cheerful and was in excellent condition, so far as we could determine. A normal amount of urine being secreted. If we had suppression of urine we could have accounted for the weak heart. She did not have an enlarged thyroid.

Dr. Morris.—It would seem that the toxemia from the carcinoma made an impression upon the vaso-motors quite as quickly as the dilatation of the abdominal sinuses. I would like to ask Dr. Ill what explanation he has to offer in regard to this case.

Dr. Ill.—I would like to know the position of the patient's head the first few hours after operation. That sometimes helps us out. Since I have practiced the method of elevating the feet of patients after operations, there is not likely to be any shock. In fact, I have never seen shock from hemorrhage if the patient is kept in a horizontal position. As Dr. Morris intimates, I believe the veins became overfilled and the patient gradually sank.

Dr. Humiston.—The woman was in the prone position, without any pillow. That is the position in which I always put such cases. I could not account for her death, inasmuch as there were

no evidences of hemorrhage, and it was too early for sepsis. Dr. Frederick has observed the same condition in cases that have come under his observation. It is to be hoped that we may be able to clear this matter up with closer observation hereafter. We should take more pains in observing them after operation.

LARGE ECHINOCOCCUS CYST OF THE LIVER; OPERATION AND RECOVERY.

BY

HERMAN E. HAYD, M.D.,

Buffalo.

THE tenia echinococcus is a variety of tapeworm found in the dog, and occasionally in the wolf and jackal, but very rarely in our native North American animal; in fact, only one authentic case is reported, and that by Curtice of Washington, D. C. Numerous other observers, such as Osler and Clement, Sommer, Stiles, and Hassall of the Bureau of the animal industry, have made many dissections of many different varieties of dogs, and have never once found it. It is a tiny cestode four or five millimeters in length, and consists of only three or four segments, of which the terminal one alone is mature. The head is small, and provided with four sucking disks, a rostellum, and a double row of hooklets. The ripe segment contains about 5,000 eggs. It inhabits the upper intestines, and is seen as a little, white, thread-like body, closely adherent among the villi.

To the abdominal surgeon it is of especial interest, since it produces in man in its larval stage a disease which is termed hydatids, and which is developed in various organs of the body, especially the liver, where it occurred in 73.7 per cent. of the recorded cases. It also attacks the lungs, pleura, kidneys, the muscles and dermis, the brain, the female genitalia, and the bones and eyes. In this country the disease is exceedingly rare, and when found it is usually in the foreign-born individual, but in Iceland, where dogs are used freely, and are in such intimate and constant association with the human being, the disease is so common that it is referred to as the "Liver Plague," and one in every seven or ten deaths is due to it.

In Australia it is also very common, and in certain parts of Germany, and in Winnipeg, in the Icelandic population, quite a number of cases have been found, but only one case is reported in a Canadian-born offspring. The eggs are voided in large numbers by the dog, and are deposited in water or on the various vegetables we use as food, or they may be conveyed from

the body of the dog by hands to mouth. The egg is swallowed and gets into the stomach or intestines, and there its surrounding wall is digested or dissolved off, the embryo is freed and bores its way through the mucosa into a bloodvessel, and is carried to various parts of the body. Wherever it makes a connection an inflammatory exudate is thrown out which surrounds the cell, and subsequently becomes its protecting envelope or capsule. Inside of this capsule the parasite continues to grow; it consists of two layers, an outer lamellated structure called the cuticula, and an inner granulocellular—the parenchyma; from this inner layer the secondary or daughter cysts develop, and from them tertiary or granddaughter cysts, by a process of evagination; and on the inner surface of the cysts, whether primary, secondary, or tertiary, the heads or scolices of the immature worm are formed.

The disease is most common between the age of twenty-four and thirty, and the symptoms produced depend upon the organs involved, the size of the tumor, and the inconvenience which results from the pressure and contact upon other structures. The parasite produces no specific symptoms of itself, and its presence might not be detected were it not for the irritation, inflammation, and hyperplasia of the organ which shelters it; but the discomfort is often so slight that the disease remains unrecognized, and is only found out at postmortem. Sometimes the cyst grows rapidly, and its capsule is thinned from pressure necrosis and ruptures, the contents of the sac gets into one or more of the body cavities, and may produce very serious inflammatory disturbances, or an abscess forms and points under the skin, and either breaks or is relieved by an operation.

The first case that has ever been under my notice in Buffalo was brought to me by Dr. Tartaro in April, 1907. The patient was an Italian, in good physical condition, aged thirty-seven; married, and a stone mason by occupation. For a number of months he had noticed a hard, painless swelling in the pit of the stomach, which was gradually getting larger, and was beginning to inconvenience him in his work because of its size. Upon examination, a large globular tumor could be felt, extending deep under the border of the ribs, and particularly to the left side, and filling up practically the whole epigastric and one-half of the inner right hypochondriac region. It was painless, elastic, smooth in outline, and, upon auscultation and palpation, no adventitious sound could be heard and no friction could be felt. The man had never had syphilis or malarial fever, and never was a drinking man.

The suggestion to thrust a trocar into the tumor and remove some of its contents for microscopical examination was deprecated, on account of the danger attending this simple and seeming trivial undertaking. Cases have been reported where the patient suddenly died after puncture from a profound toxemia, which resulted from the escape of a few drops of the fluid contents of the sac, and in others a milder form of intoxication took place, associated with fever. malaise, an urticarial rash, and other sequelæ. Moreover, one cannot tell what important structures the trocar would pass through in puncturing the cyst wall, since the tumor, as in this instance, was deep and completely covered by bowels and omentum. It would seem, therefore, much safer to make an exploratory incision, and through it a careful examination, and then proceed with such surgical measures as would be indicated, since nothing short of radical surgery can do any good in this disease.

After studying the case from all standpoints, I was forced to concur in the diagnosis of echinococcus cyst of the liver, which Dr. Tartaro had made at an earlier visit. The patient was sent to the German Deaconess's Hospital, and was operated on April 17, 1907. An incision was made a little to the right of the median line, and after getting into the peritoneal cavity the bowels were seen densely adherent all over, and completely covering a large, white, tense, tumor. They were separated with much difficulty, the skin incision was extended freely, the liver was lifted up as much as possible into the wound, and as it was elevated gauze towels were packed deeply underneath the tumor, and about it and the edges of the wound. Some time was occupied in making the gauze packing so complete that the peritoneal cavity and the edges of the incision would be thoroughly protected when the cyst was opened. A large trocar was thrust into the tumor, but nothing came out but a little milky-looking fluid. Then the capsule was freely incised, and at least two quarts of cysts, of varying sizes—from a grain of shot to a large walnut—welled out. After the sac was pretty well emptied, it was irrigated with salt solution, through a large glass nozzle, with some force, and pushed to the bottom of the cavity, when the mother cyst or that one lining the capsule began to loosen, and was finally washed away. A small piece of iodoform gauze was then loosely packed into the cavity for drainage; the gauze towels were removed, and the sac around the opening was sewed to the abdominal wall and the wound being closed with through-and-through silkworm gut sutures. After the gauze packs had been removed it was seen that the cyst had

sprung from the left lobe of the liver and rested high up on the crura of the diaphragm.

The man rallied nicely, and in a few days was in splendid condition. On the fourth day he had some temperature and developed a slight cough, a friction rub could be heard on the right side, and subsequently all the physical signs and symptoms of pneumonia developed. He ran an evening temperature of 104° and 105°; had considerable cough and bloody expectoration, and became very sick; whereupon Dr. Tartaro gave him the serum treatment, with most satisfactory results. On the eleventh day his temperature was normal; on the fifteenth day the sutures were removed. The wound looked fine, and everywhere it seemed to be perfectly agglutinated. On the seventeenth day he complained of a good deal of pain in the wound, so the dressings were removed, when it was found that the incision had opened and a piece of bowel about four inches long was protruding through the opening. He was taken to the operating room, and, without any anesthetic and without washing the parts, the bowel was gently pushed back; four through-and-through silkworm sutures were passed, and the parts were properly brought together. No complications set in and no pus formed. The sac cavity was occasionally irrigated with salt solution, and he left the hospital in May, 1907; the sinus was still discharging.

I saw him again in July, 1907, when the wound was thoroughly united, and his physical condition was excellent. Perhaps the incomplete union and the subsequent rupture, with bowel protrusion, were due to the delayed and imperfect solidification of the tissues consequent upon the pneumococcus infection, as the sputum revealed the organism in great abundance, and Dr. Tartaro tells me it is in the unmixed or true infections that the serum, which is an Italian product, is most efficacious. It has been used very largely by him, and some of his cases have been reported in the *Buffalo Medical Journal,* in an article read in March, 1906, by him before the Buffalo Academy of Medicine.

DISCUSSION.

Dr. Edward J. Ill, Newark.—My earliest experience, when I was a medical student, was connected with a case like the one that has been reported, and showed the wisdom of not putting a needle into a tumor. This was during by first year of medical work as a student. I was witnessing at the hospital the introduction of the aspirating needle for the purpose of making a diag-

nosis of tumor of the liver. The surgeon washed the instrument with a five per cent. solution of carbolic acid. He withdrew some fluid and said the case looked like one of abscess of the liver because the fluid looked like pus, and accordingly opened it. He got a tremendous hemorrhage, the patient dying the following night.

Post-mortem examination disclosed a liver of large size, filled with little cavities, each cavity lined with a hyaline membrane, and nobody seemed to know what it was. I took the liver home, stored it away, and thought some day I would find out what all this meant. I made an attempt now and then to find out what it was. In '78, five years afterward, I was working with Professor Prudden in his laboratory and showed him sections of this liver. Professors Prudden and Delafield, after study of the sections, said that this was the first case of multilocular cysticercus of the liver they had seen. The case was afterward described in Prudden's and Delafield's Pathologic Anatomy, and I believe is the only case ever shown in this country. It is described also in Virchow's Pathological Anatomy.

These cases do not show the scolices. There have never been any found in them. This liver is still at the museum and has been searched again and again for them. The only pathologic condition or lesion is the lamellated layer of the hyaline membrane.

DR. MORRIS.—Were there any daughter cells in evidence?

DR. ILL.—No.

DR. C. C. FREDERICK.—I would like to ask Dr. Hayd what he thinks was the cause of the pneumonia and infection of the cyst at the time of operation? Again, would it not have been possible to have dissected the whole cyst or have been better or not to have opened it?

DR. MORRIS.—Siebold, Lockhart, and a number of others mention the fact that any one of the daughter cells gaining entrance to the operator will go on and produce the echinococcus cysts of the liver, and yet when we operate on a patient in many of these cases very many of these embryonic cells are likely to escape, and yet recovery is common enough. Recurrence is also common. But recurrence is common in some cases where the embryonic forms or cells escape. If they get on the operator's lips, they are likely to develop in him, and yet the patient is comparatively immune.

DR. HAYD (closing the discussion).—I am not a zoologist nor a bacteriologist, and I cannot, therefore, give Dr. Morris the information he is seeking. In reading the different works bearing on this case, I became exceedingly interested in the study of these organisms after I once saw this specimen. Supposing we were to swallow a cyst, it has not been proven, I understand, that we can get the tapeworm ourselves. The cyst must go into another animal, and that animal will produce the tenia.

DR. MORRIS.—The daughter cells will grow direct.

DR. HAYD.—According to Moynihan, one should be particular in protecting the field of operation, because the patient upon whom you are operating can be infected by these escaping cysts, when they get into the peritoneal cavity or edges of the wound, but the operators themselves are not infected. That is the way I understand it.

DR. MORRIS.—It is maintained by some authorities that if a single hooklet attaches to the mucous membrane, the individual may develop a cyst.

DR. HAYD.—With reference to the remarks made by Dr. Frederick, I will say that there was no infection of the sac. It was perfectly clean. We had no trouble whatever from the surgical side. As to the explanation for the pneumonia which developed, I do not know hardly how to account for it, other than that I have found that pneumonia develops frequently in operations on the liver, the stomach or gall-bladder. I presume we are so close to the lymphatics of the diaphragm that the infection gets up into the lung most easily. So far as treating the sac is concerned, if I had tried to get the sac out I would have killed the patient. It was with the greatest difficulty that I could bring the sac close to the edges of the wound, so that I could attach it to the abdominal wall and drain off the cyst. With reasonable care the sac can be taken care of and drained, just like any other simple sac or gall-bladder, and for that reason Moynihan is opposed to trying to extirpate the sac. He never thinks of doing it under any circumstances.

NEPHROCOLOPEXY,

WITH REPORT OF CASES.

BY

HOWARD W. LONGYEAR, M.D.,

Detroit.

At our two last annual meetings I presented to you some ideas regarding the etiology of nephroptosis and an operation devised according to the theory described. Since the last meeting I have kept on with the work, which has been along the same lines as those laid out in regard to the operation. This article is solely to report progress in the work.

My idea in regard to the etiology is simply that the kidney is pulled down by the nephrocolic ligament, which is a connection between the colon and kidney formed by the framework of the fatty capsule passing down from the kidney and being implanted in the posterior wall of the bowel between the peritoneal reflections. The traction exerted on the kidney by a heavy cecum and ascending colon, by means of this attachment, I believe to be the principal cause of nephroptosis, and that this theory explains satisfactorily the reason for there being fifteen nephroptoses of the right side to one of the left.

Now, in my operation, I simply catch up this mass of longitudinal fibers, which I call the nephrocolic ligament, and fasten it to Gerota's capsule, thus slinging up at once both bowel and kidney. The ligament is simply a lot of fine fasciculi lying in apposition, more or less, according to the amount of fat which is within its meshes. If there is no fat it can be found and demonstrated without difficulty. I bunch this up with a hook, separate it from the peritoneum somewhat, thus forming a loop, and sew Gerota's capsule, overlapped, through the loop. This operation slings up both kidney and bowel, but I believe the bowel fixation to be the most important feature of the operation, as it prevents farther traction on the kidney. Recognizing the fact that the enteroptosis, to a greater or less extent, has to be considered in the therapeusis of these cases, and that any operation which has yet been perfected can only deal with a comparatively small part of the large intestine, I apply an abdominal supporter to these

patients, after operation, which is to be worn indefinitely. Nephrocolopexy will raise the ascending colon and cecum, and so straighten out an acute angle in the hepatic flexure, but it will not raise the displaced transverse colon; the abdominal supporter must

Fig. 1, Case 14.—Colon in pelvis.

do this, and later an accumulation of fat will very materially assist in the complete cure. Colonic catarrh, which frequently attends these cases, may demand post-operative attention. The surgeon and the gastroenterologist should handle these conditions together.

A full cecum pulling down constantly upon the fatty capsule pulls the kidney out of its position. If we can prevent that traction, then we can relieve the patient of the symptoms of floating kidney. The kidney itself, weighing but a few ounces, will almost

Fig 2, Case 14.—Showing slightly higher position of colon after operation.

take care of itself if we once take away that traction. By sewing up this nephrocolic ligament, we prevent also the traction farther above, upon the duodenum, where it is adherent to the fatty capsule, which we do not do when we sew up the kidney by the old methods, without also fixing the fatty capsule, because the

bowel will still pull downward, and through the fatty capsule displace the duodenum, and the patient will continue to have dyspeptic symptoms and nervous manifestations.

I started some Roentgen-ray work recently, with the assistance of Dr. P. M. Hickey of this city, examining cases of nephroptosis

Fig. 3.—View from back, showing angulation of colon.

for the purpose of determining in them the position of the colon. These patients were given an ounce of subnitrate of bismuth in a pint of milk the evening before, which they took in three separate doses, an hour apart, beginning at about seven in the evening, and had the *x*-ray made between nine and ten o'clock the next morning. While I have only begun this line of investigation.

some of the skiagraphs which I show you are very interesting and suggestive illustrations tending toward the proof of the theory that the displaced bowel is the principal factor in the pathology, and that if we are to treat these patients with success we must first recognize the fact that the condition is a complex one, involving in its pathology not only a displaced kidney, but also the cecum, and in many cases the entire large intestine as well, to a greater or less extent.

Here is one taken of my fourteenth case, which is of especial interest, as the *x*-ray diagnosis was positive, and was proven later by abdominal section. You will see the shadow formed by the subnitrate of bismuth on the right side, which can be followed down into the pelvis. The bismuth shows the cecum far down in the pelvic cavity. After I had fixed the nephrocolic ligament in this case, in the manner I have described, I opened the abdomen, for the reason that she had had pain in the region of the right ovary and appendix—although I could find no deformity—and found the appendix firmly adherent to the parietal peritoneum, close to the internal ring, and that the fixing of the nephrocolic ligament had pulled the bowel up and put the appendix on the stretch, which was liberated and removed. The patient, a delicate woman, has gained five pounds and is much improved every way. Her constipation has disappeared. Another *x*-ray will be made soon and a comparison made. (No. 2 was made of this case since the above was written, and shows the cecum to be in a much higher position than previous to operation.)

We have found the best negatives were made with the patient on the abdomen and the sensitive plate beneath. The kidneys show very little in any of these cases. I have tried giving them methylene blue to bring them out, but with only negative results.

In one case in which we made an *x*-ray the bowel showed very clearly, by reason of gas, with which it was distended, so we inflated the bowel in several cases, but that method was not a success, so we had to go back to bismuth again.

Here is a beautiful illustration (No. 3) of a woman who had a right nephroptosis. The illustration shows a kink or a very decided angulation of the transverse with the descending colon, where the transverse and descending colons lie in apposition to each other for quite a distance. You can see how beautifully it shows the bismuth throughout the whole intestine. No operation has yet been made on this subject, and, owing to the principal deformity showing on the left side I shall expect only partial relief of symptoms from the nephrocolopexy.

I have had trouble after operation, only of a trivial character, and in but two cases. Have operated on fourteen cases since our meeting last year, making a total of twenty-three by this method. Patients have very little pain after operation; they have some pain for the first twenty-four hours, and for a month or two they will complain of some pulling at the seat of operation, but beyond that there is very little trouble of any kind. One patient, the one who had had a hysterectomy performed previously, as well as one breast removed by some other surgeon, did well until the seventh day, when she developed a phlebitis of the left leg, which kept her in bed for three weeks. But she made a perfect recovery, with absolutely no indications of sepsis in the wound. Healing of the wound was by first intention, and the result was perfect four months after she left the hospital.

The other case was exceedingly interesting. The woman did well until the ninth day, when she began to have a pain located in the region of the gall-bladder. But, on examining the wound, which I had dressed a few days before, and found to be apparently well healed with nothing abnormal, it was bulging and painful, but with no inflammatory condition. I passed a probe through the cicatrix, and out spurted a perfectly clear, thin fluid. I thought probably it was a collection of serum, opened the wound a little more, and was surprised to find a large amount of fluid. I put in a small drainage tube, sealed it up with a lot of gauze, thinking it would be well evacuated by the next day. During the night it saturated the gauze and much of the bedding. It had no odor. By connecting the drainage tube with a bottle it was found that she was passing from two to three pints a day. The fluid was sent to the laboratory and found to contain two-tenths of one per cent. urea. There was absolutely nothing else in the fluid, but the amount of urine voided by the bladder diminished in quantity in proportion as this fluid increased. The urine was normal otherwise, and had been at the time of, and since the operation. There had been no blood in it, and there was no hemorrhage at the seat of operation. The fluid was perfectly clear. During the time the flow continued there was no stain, no urinous odor, or anything of the kind, but it saturated large quantities of dressings daily. She had a special nurse to take care of her, and apparently no sepsis occurred after it was opened. This discharge continued for four weeks, and at the end of that time, as it had become very slight and the wound nearly closed, I let her go home. She sent for me a week afterwards, when I found

the region of the wound bulging, opened it as before, and there was perhaps an ounce of fluid discharged. I sealed it up again, after which it healed permanently. I have seen her several times since, and no further trouble has ensued. It seems to me that it could hardly have been the ureter that had leaked; if it were we would have had normal urine in the discharge. Probably it might have been from the cortical substance of the kidney, which may have been cystic and become wounded.

In two-thirds of the cases operated on I found other conditions, necessitating additional operations, which fact renders statistical deductions of doubtful value as far as symptoms are concerned.

This much I can say in regard to holding up the kidney; it does not hold it up rigidly, as is intended in the old operation of uniting the kidney to the muscle, but it holds it so that it is partially movable, which I consider advantageous. In the normal kidney there is motion during respiration, and I think there should be. In my cases, after operation, I can usually feel the lower pole, or the lower half of the kidney, on deep inspiration. One symptom has been markedly ameliorated in most cases, and that is constipation. Patients who had all manner of trouble in opening their bowels and keeping them open, have reported to me that they have not been obliged since the operation to use cathartics; that their bowels have become regular. This, I believe, is a valuable indication that the consideration of the position of the bowel as an etiologic factor is of primary importance in this condition.

I have thus far operated on a total of twenty-three cases, eight of which had a nephrocolopexy only, while fifteen had additional operations at the same time. Marked general improvement is reported in nineteen, slight improvement in two, and no improvement in two.

A CASE OF DECIDUOMA MALIGNUM.

BY

AP MORGAN VANCE, M. D.,

Louisville.

THE rarity of this form of malignant disease of the uterus and the diversity of opinions as to the nature and origin of these growths make me wish to put the following case on record.

On April 14, 1907, I was called by Dr. John G. Cecil to see Mrs. H., age 27. The history up to two years before was negative. Three years before she had been delivered of a full term healthy child; there were no complications beyond a cervical tear. One year after this labor she miscarried at three months without apparent cause. This was an incomplete abortion requiring a curettage. After this an operation was done to repair the uterine neck, preceded by another curetment. One week before I saw her she miscarried at three months for the second time without assignable cause. The fetus was delivered before Dr. Cecil arrived and was removed by the husband. There was no hemorrhage or other complication except that no afterbirth came away. No interference was undertaken and no untoward symptoms occurred until the day I was called in, six days after the expulsion of the fetus. The fetus was only partly developed for the period of gestation. A little fever and some odor had appeared, and I advised a thorough cleaning out of the uterus. This was done immediately without anesthesia, the patient refusing to be anesthetized because at the previous operation there had been some difficulty. The os was found very patulous with a small cord protruding. Slight traction brought this away, a small disc of membrane being attached. A very thorough curettage was done, and the cavity which was six inches deep was repeatedly wiped out with large gauze pads.

For three weeks she was supposed to be slowly convalescing, a moderate discharge continuing. At this time in answer to a hurried call I found that an excessive hemorrhage had taken place while the patient was up in a chair. She had bled to almost

complete exsanguination, as evidenced by the very feeble pulse and great pallor. I immediately tamponed the vagina tightly with gauze and the next day removed the patient to an infirmary. The packing was removed at the end of forty-eight hours in order that I might obtain a scraping for further diagnosis. Very

Fig. 1.—Showing the gross specimen with a small cyst on the left. The dark portion shows the site of the growth.

active hemorrhage took place at once, which was not controlled by another tampon, the patient coming within the verge of bleeding to death before I could get the uterine cavity packed with gauze. I obtained a small piece of tissue from the uterus which, upon examination by Dr. John E. Hays, proved my diagnosis of the malignant character of the trouble to be correct.

During the next three days with careful feeding by the stomach and frequent saline injections by rectum some general improvement occurred, whereupon I did a complete hysterectomy from above, first thoroughly cleansing the vagina, repacking the cavity

of the uterus, and sewing up the os. The patient was so weak by this time that a death on the table seemed imminent, but the foul condition of the uterine cavity and the development of fever compelled me to go ahead. Subcutaneous injections of saline solution were liberally used and the operation was completed in forty minutes.

The convalescence has been slow, but seems complete at this

Fig. 2.—Photomicrograph of a section under low power. In the left two-thirds are seen a number of partially degenerated and atrophied chorionic villi. The right third shows a space filled with fibrin, leucocytes, and erythrocytes, and in the lower portion a few cells of Langhans' layer.

date, two months after the operation, the patient being up and rapidly gaining. Dr. Hays made a thorough investigation of the growth and his report with four illustrations are submitted below.

PATHOLOGIC REPORT.

This growth was situated on the anterior wall of the uterus, about the size of an almond, reddish yellow in color, and very friable, resembling placental tissue.

Sections under the microscope showed the growth to be composed of masses of clotted blood, chorionic villi, and syncytial tissue. The villi are much degenerated and it is hard to make

out the layers of cells,—the Langhans and syncytial layers,—as they appear in normal placental tissue. Yet epithelial cells (Langhans) and undifferentiated masses of protoplasm are found in the fibrin and infiltrating the musculature of the uterus. These cells and syncytial masses are also found infiltrating the walls of the blood channels.

From the clinical history and the histologic findings, I have no doubt but that this growth is a chorionic epithelioma of the uterus.

JNO. E. HAYS, M.D.

Fig. 3.—Photomicrograph—low power. In the upper left quadrant is seen a villus, and to the right of it a large mass of epithelial cells from Langhans's layer. Just below the center is a blood space, the walls of which are infiltrated by Langhans. Below this the musculature of the uterus.

It is hardly worth while for me at this date to enter into any extensive discussion of the subject of Deciduoma Malignum. There have appeared in recent years a number of excellent articles on the subject. One by Frank E. Pierce, B.S., M.D., in the AMERICAN JOURNAL OF OBSTETRICS, March, 1902, is particularly thorough and exhaustive. Also, there is a clinical review of the subject by Louis J. Ladinski, A.B., M.D., in the April number of that journal of the same year.

Up to the present time something over two hundred cases have been put upon record, the first notice of this particular form of malignant growth having been made as late as 1888 by Sanger.

Fig. 4.—Photomicrograph under high power of the blood space shown in Plate 3. Here we see a band of syncytial tissue dividing the space into three portions and the left wall infiltrated by epithelial cells, with a mass of same cells to the right of the narrow slit.

I feel sure, however, if the unreported and unrecognized cases were included, it would be proven much more frequent than at present it is supposed to be.

MYOFIBROMA COMPLICATING PREGNANCY; HYSTERECTOMY.

BY

EDWARD J. ILL, M.D.,

Newark.

THIS specimen comes from Mrs. T., who has been married one year. She first presented herself through the kindness of Dr. Mead, on April 26, 1906, then single, thirty-four years old. Her previous history was uneventful. She was always regular, never flowed excessively, nor had any pain. She complained that there was an enlargement of the abdomen, and she was having some slight feeling of heaviness. She menstruated normally without pain, felt well, and looked the picture of health. Seven years ago she was told there was an enlargement of the womb. An examination now showed a solid tumor, filling the abdomen for 20 cm. above the pubes and 20 cm. in width. The cervix was felt high up behind the pubes, and a nodular mass filled the small pelvis, but could not be pushed out. The whole mass, with the cervix, was fixed. No corpus uteri could be felt. The diagnosis was a myofibroma. On June 1 she again presented herself. The measurements showed no increase. The size of the tumor, the fixation in the pelvis, and the youth of the patient, determined that I should suggest an operation. The patient, however, wanted to get married, and as both she and the intended husband, who is a physician, belong to an exceedingly intelligent class of people, the operation was deferred.

She was married, and on August 5 of this year (1907) she again presented herself, having gone over her regular menstrual period by two weeks, but was perfectly well, except a sense of abdominal fullness. Her last regular period was on June 25, 1907, when she had an excessive flow lasting two weeks. She still appeared in perfect health, but the tumor reached the border of the ribs and measured 27 cm. above the pubes and 23 cm. in width, a marked increase in size for fourteen months. On August 12 she again presented herself, complaining of very severe pain, and swelling in the left thigh and leg, so that she was unable to be about, and could lie down only with an elevated leg. All this occurred in

about two days. On examination, the thigh was shown to be swollen and of slightly darkened hue. There was but very slight pulsation in the left popliteal artery as compared to the right, and the temperature was lower than the right, as shown by palpation. The abdomen and tumor were very tense and painful, but there was no fever. There was much intermittent backache and much upward pressure under the ribs. There had been no flow of blood.

With such threatening symptoms there seemed no alternative

Myofibroma with Pregnancy.

but the most prompt interference. The patient was evidently pregnant and the rapid growth accounted for all symptoms except the intermittent backache, which was explained when the specimen was examined after the operation. I have never been obliged to destroy intrauterine life, though I have had many narrow escapes, but never to the detriment of the mother. This case left me no alternative. It is this fact that prompted me to report the case. To do an abortion through a long, narrow, and displaced cervix, gave the woman no chance, as the specimen will show.

The only thing to do was to remove the whole uterus above the cervix. On August 13 the tumor was removed through an incision of thirty cm. During the delivery of the tumor a large hematoma of the right ovary was broken and the peritoneum was

stripped off the sigmoid flexure because of the adherent pelvic portion of the tumor. The operation was a simple supravaginal amputation. The left ovary was permitted to remain and the patient made an easy recovery, having at this time but little trouble with her left leg. The specimen, as shown here, measured thirty-five cm. in its vertical diameter, twenty-four cm. in width, and weighed 5,500 grams. The cavity of the uterus measured ten by twelve cm. and was filled with a grumous bloody fluid, in which, still attached to the uterus, near its right horn, was the ovum. It was covered by its decidua reflexa and was macerated to some extent. The amniotic fluid looked turbid, and no fetus was seen. The decidua was of a spongy, gray character, and easily removed from the uterine wall; in other words, the ovum was dead and the woman about to miscarry. There had been no discharge from the uterus because of the very elongated, contracted and tortuous cervical canal. The intermittent backache was accounted for by the attempted expulsion of the product of conception, which evidently killed the ovum. I am delighted to add that I have yet to be called upon to deliberately kill a fetus.

THE RELATION OF THE WEIGHT OF THE PLACENTA TO THE WEIGHT OF THE NEWBORN CHILD.

BY

W. P. MANTON, M.D.,

Detroit.

FOR many years, because of the interchange of gases (oxygen and carbonic acid) known to take place within its substance, the placenta has been referred to as the "fetal lung." Modern investigation has shown that, besides this process, the after-birth possesses peculiar functions in the elaboration of food material from the maternal blood in such form as to furnish those elements best adapted to the nourishment and upbuilding of the fetal structures.

The similarity, in this respect, between the placenta and the female mammary gland would render the term "antenatal breast" equally applicable. We find in early postnatal life effects produced according to the development of the maternal breasts and the amount and quality of the milk which they secrete. If the analogy just mentioned holds good, we might with reason look for some evidences in the development of the child at birth as to the part played by the placenta in its nourishment during intrauterine life, and we might expect to find this placental efficiency manifested in a relationship between the weight of this organ and that of the neonatus.

It is, of course, perfectly evident that the placenta, like the mammary gland, may be poorly developed and in consequence the nourishment of the child affected in this way, or certain of the placental tissues, of no value whatever in the selection of food supply, may become over-developed so that, while the after-birth is large, its capacity for the formation of nourishment remains at normal or is even diminished. Many problems of like nature would naturally suggest themselves in the consideration of this question, some of which might be answered by a comparison of weights and averages and a study of the chemical changes taking place in the placenta, while others could not be determined by these or in any other way. It would be impossible to ascertain, for instance, why a placenta, although small, elaborates a sufficient or plus quantity of food while another larger fails

to supply the proper amount. We could only surmise that the chemical changes are more active or that the functioning cell surface is larger in the one than in the other.

We are quite familiar with the fact that the weight of the neonatus may be considerably modified by the amount and quality of food ingested by the mother during the nine months of utero-gestation, but, as far as I am aware, no observations have been made as to the influence of diet on the size and weight of the placenta.

By taking the average in a number of cases we can determine the normal weight of the placenta and of the newborn child at term, and thus obtain the weight-ratio between the two. We can also ascertain whether multiparity or sex exert an influence on this ratio, and altogether we can arrive at some idea as to the probable work done by the placenta by a comparison of its weight and that of the child in series of cases. In other words, we may attempt to establish the fact as to whether a large placenta means a large child or whether the size of the former has really little to do with the weight of the latter.

In order first of all to get at the average weight of both placenta and child, I have taken four hundred cases from the records of the Woman's Hospital and have used the results obtained as a standard for comparison.[1] These cases were all normal and the children, with two or three exceptions, survived for a period of at least ten days following delivery.

Taking the four hundred cases, we find that the average weight of the child is 7 pounds and 3 ounces, while that of the placenta is 1 pound and 3 ounces—a ratio of 6 to 1. If we now take the child pound by pound from the smallest to the largest born at term, we find that the placental weight, with one exception, gradually increases with that of the neonatus.

Thus of the whole number of cases:

Children	weighing	3-4	lbs.	have	an	average	placental	weight	of	16			oz.
"	"	4-5	"	"	"	"	"	"	"	13	13-16		"
"	"	5-6	"	"	"	"	"	"	"	16	35-45		"
"	"	6-7	"	"	"	"	"	"	"	17	72-94		"
"	"	7-8	"	"	"	"	"	"	"	19	6-77		"
"	"	8-9	"	"	"	"	"	"	"	20	42-70		"
"	"	9-10	"	"	"	"	"	"	"	21	1-6		"
"	"	10-11	"	"	"	"	"	"	"	25	3-8		"

It is not evident why children of between 4 and 5 pounds

[1]The selection of four hundred absolutely normal cases from the hospital records implies a very considerable amount of work, and I am under obligations to Dr. Mary G. Haskins and House Physician Dr. Julia A. Wood for their careful examination of a large number of clinical charts from which these cases were taken.

should have a placental weight so markedly below the average. Theoretically is is possible that the diminished weight of the placenta explains the lessened weight of the child, the latter failing to grow, although healthy, on account of diminished nourishment, or that in these individual cases, the normal weight of the child having been reached, some inhibitory influence is exerted on the placenta whereby its production of food supply is limited only to the actual demands of the fetus. It might be entirely possible that the placenta from its complete formation contains less gross substance but a larger and more active cell area, so that, had these children been born prematurely or, on the other hand, had they passed the 280 days limit, the placental weight would have remained the same in either instance. We often see small people who eat inordinately and yet never put on flesh; and the small and insignificant breast may secrete large and often enormous quantities of milk.

Coming now to the influence of multiparity on the weight of the placenta and child, we find that the weight of the average offspring, regardless of sex, of primiparous mothers is *seven pounds and one ounce,* and that of the placenta is *eighteen ounces and one-half,* a slight diminution in the normal average weight of both.

In the instance of the multiparous mother the converse obtains; the weight of the child is augmented 7 pounds and 4 3-8 ounces, while the placenta remains at the average weight.

Sex appears to exert some influence as regards the weight of the child, but has little effect upon that of the placenta. Thus the average weight of the male child is 7 pounds 4 ounces, that of the female 7 pounds 1 ounce; the respective placenta's weight 18 2-31 ounces and 18 2-3 + ounces.

It is interesting to note that among the four hundred cases the largest child, a male, weighed 10 pounds and 8 ounces (placenta weight 28 ounces; multiparous mother); the smallest child, a female, 3 pounds (placental weight 16 ounces; mother not stated). The largest placenta weighed 40 ounces (male child, 8 pounds 11 ounces; primiparous mother); the smallest placenta weighed 6 ounces (female child, 6 pounds 12 ounces; primiparous mother).

Conclusions: The figures above presented are interesting on many accounts. They at least indicate that, as a rule, the development of the placenta goes forward with that of the child, and its size may be taken ordinarily as an index to the weight develop-

ment of the latter. It is further shown that, while there may be individual variations, in any given number of cases, these will not be sufficiently numerous to greatly influence the normal weight ratio between child and placenta, that is, 6 + : 1.

IN MEMORIAM.

JAMES CREAR DUNN, M.D.

BY

WILLIAM WARREN POTTER, M.D.

James Crear Dunn was born December 9, 1847, at Merigornish, Pictou County, Nova Scotia, and died at Pittsburg, September 3, 1907. His father was William and his mother Catherine (Crear) Dunn. His grandfather, William Dunn, was a native of Scotland, and came to America as a soldier in the British army in the war of 1812. Being pleased with the new country he settled in Nova Scotia, as did many other followers of the British flag. His son, William Dunn, spent his entire life in Pictou County, Nova Scotia.

The maternal ancestors of Dr. Dunn were from the highlands of Scotland, and in the early colonial days representatives of the name settled in Nova Scotia where they followed agricultural pursuits. Dr. Dunn's preliminary education was obtained in the public schools of his native country, supplemented by an attendance at Pictou College. His professional education was obtained at Jefferson Medical College, Philadelphia, from which he graduated in 1871.

Dr. Dunn spent a year after graduation in service at the Northern Dispensary, Philadelphia, and another year as attendant physician at the Nurses' Home in the same city. He began the practice of his profession in Pittsburg about 1873, and for several years was what is known as a general practitioner. About the year 1886, however, he began to cultivate dermatology to which he devoted the larger part of his time. He was a member of the staff and dermatologist to Saint Francis's Hospital, Pittsburg. For ten years he was visiting physician and then dermatologist to the Western Pennsylvania Hospital, and was consulting physician to the Reineman Maternity Hospital; and was also Professor of Materia Medica, Therapeutics and Dermatology in the Western Pennsylvania Medical College,

He was a member of the Board of Health of Pittsburg for several years, during which time he was instrumental in establishing a house-to-house inspection for sanitary purposes. This led to the creation of the State Board of Health, and when a meeting

James Crear Dunn, 1847–1907.

was called at Harrisburg to effect the organization Dr. Dunn was made chairman of the gathering.

Dr. Dunn was a member of the American Medical Association; of the Pennsylvania State Medical Society; of the Alle-

gheny County Medical Society, of which he was one time president; of the American Association of Obstetricians and Gynecologists; of the American Public Health Association, and of the Pittsburg Academy of Medicine. He was also member of several societies not medical, and was a prominent member of the Presbyterian Church.

Dr. Dunn married Miss Juliette Thalia Du Barry, October 4, 1877, who died June 22, 1903. Six children were born of this marriage, two of whom are now living—John Sidney and George Du Barry Dunn, both living in Pittsburg.

Even from this brief account it will be observed that the subject of this memoir was a man of activity in professional and civic life, appreciated as a physician, citizen, and in religious circles. He died too young.

INDEX

ABRAMS, EDWARD THOMAS, xxv.
Appendix, influence of the menstrual function upon chronic inflammatory conditions of the, 114.
ASDALE, WILLIAM JAMES, xxv.

Back to an old idea, for it introduces a new principle in surgery, 1.
BACON, JOSEPH BARNES, xxv.
BALDWIN, JAMES FAIRCHILD, xxv, 21, 38, 96, 98, 103, 120.
BANDLER, SAMUEL WILLIS, xxv.
BELL, JOHN NORVAL, xxv.
BLUME, FREDERICK, xxv.
BONIFIELD, CHARLES LYBRAND, xxvi, 24, 164, 220.
BOSHER, LEWIS C., xxvi.
BOYD, JAMES PETER, xxvi.
BRANHAM, JOSEPH H., xxvi.
BROWN, JOHN YOUNG, xxvi.

CANNADAY, JOHN EGERTON, xxvi, 61, 72, 260, 271.
CARSTENS, J. HENRY, xxvii, 11, 112, 213, 225.
CHASE, WALTER BENAJAH, xxvii.
CONGDON, CHARLES ELLSWORTH, xxvii.
Conservative medical treatment of salpingitis, 247.
Consistency in aseptic surgical technique, 265.
CRAIG, DANIEL HIRAM, xxvii.
CRILE, GEORGE W., xxvii.
CROFFORD, THOMAS JEFFERSON, xxviii.
CROSSEN, HARRY STURGEON, xxviii.
CUMSTON, CHARLES GREENE, xxviii.
Cyst, large echinococcus, of the liver; operation and recovery, 288.

DAVIS, JOHN D. S., xxviii.
DEAVER, HARRY CLAY, xxviii.
DEAVER, JOHN BLAIR, xxviii.
Deciduoma malignum, 272.
Deciduoma malignum, a case of, 301.
Dermoid tumor of the ovary, an unusually large, 279.
DORSETT, WALTER BLACKBURN, xxix.
Dunn, James Crear—In Memoriam, 313.

EASTMAN, THOMAS BARKER, xxix.
ELBRECHT, OSCAR H., xxix, 25, 36, 59, 66, 69, 86, 129, 243, 261, 264.
End results in operations for prolapsus uteri, 73.
Enucleation of large extramural intraligamentary uterine myomata, without mutilating any pelvic organ; two cases and remarks, 190.
ERDMANN, JOHN FREDERICK, xxix.

FERGUSON, ALEXANDER HUGH, xxix.
Fibroid of the uterus, temporary uretero-vaginal fistula after panhysterectomy for, 208.
Fibroid operations during pregnancy, 213.
Formation of an artificial vagina by intestinal transplantation, 98.
FRANK, LOUIS, xxx.
FREDERICK, CARLTON CASSIUS, xxx, 163, 234, 237, 245, 257, 286, 292.

Gallstone diseases, observations and reflections on, 15.
GIBBONS, HENRY, JR., xxx.
GILLETTE, WILLIAM J., xxx.
GOLDSPOHN, ALBERT, xxx.
GOODFELLOW, GEORGE E., xxx.
GUENTHER, EMIL ERNEST, xxx.
GUITERAS, RAMON, xxx.

HAGGARD, WILLIAM DAVID, JR., xxxi.
HALL, JOSEPH ARDA, xxxi.
HALL, RUFUS BARTLETT, xxxi, 27, 39, 87, 121, 169, 215.
HAMILTON, CHARLES SUMNER, xxxi.
HAYD, HERMAN EMIL, xxxi, 83, 88, 94, 96, 124, 133, 162, 171, 219, 253, 264, 288, 292, 293.
HOLMES, JOSUS BILLINGTON SANDERS, xxxi.
HOWITT, HENRY, xxxii, 190, 223.
HUGGINS, RALEIGH R., xxxii, 41, 60, 169.
HUMISTON, WILLIAM HENRY, xxxii, 23, 60, 157, 165, 169, 175, 255, 279, 285, 286.

ILL, CHARLES L., xxxii, 286.
ILL, EDWARD JOSEPH, xxxii, 35, 68, 96, 215, 235, 247, 263, 264, 291, 292, 306.
Intraabdominal torsion of the omentum without hernia, 227.

JAYNE, WALTER ADDISON, xxxiii.
JOHNSTON, GEORGE BEN, xxxiii.
JONAS, ERNST, xxxiii, 65, 86, 121, 131, 208, 224.

KEEFE, JOHN WILLIAM, xxxiii, 73, 88, 96.
Kidney, tuberculosis of the, with report of cases, 27.

LANGFITT, WILLIAM STERLING, xxxiii.
Large echinococcus cyst of the liver; operation and recovery, 288.
LEWIS, F. PARKE, 134.
LINCOLN, WALTER RODMAN, xxxiii.
LINVILLE, MONTGOMERY, xxxiv, 244.
Lithopedion or lithokelyphopedion, thirty-two years old, successfully removed from a woman sixty-seven years and seven months of age, 124.
LONGYEAR, HOWARD WILLIAMS, xxxiv, 284, 294.
LYONS, JOHN ALEXANDER, xxxiv, 19, 59, 65, 121, 146, 158, 164, 218, 244, 277, 284.

MCCANDLESS, WILLIAM A., xxxiv.
MCMURTRY, LEWIS SAMUEL, xxxiv.
MANTON, WALTER PORTER, xxxiv, 309.
Menstrual function; its influence upon chronic inflammatory conditions of the appendix, 114.
Menstruation, painful, some of the causes of, in young unmarried women, 104.
MILLER, AARON BENJAMIN, xxxv.
MILLER, JOHN D., xxxv.
MORIARTA, DOUGLAS C., xxxv.
MORRIS, LEWIS COLEMAN, xxxv.
MORRIS, ROBERT TUTTLE, xxxv, 1, 12, 19, 35, 69, 70, 95, 96, 158, 162, 175, 235, 245, 253, 263, 271, 284, 286, 292, 293.
MURPHY, JOHN BENJAMIN, xxxv.
Myofibroma complicating pregnancy; hysterectomy, 306.

Nephrocolopexy, 294.
NEWMAN, LOUIS EDWARD, xxxvi.
NICHOLS, WILLIAM R., xxxvi.
NOBLE, GEORGE HENRY, xxxvi.

NOBLE, THOMAS BENJAMIN, xxxvi.
Nymphomania as a cause of excessive venery, 237.

Observations and reflections on gallstone diseases, 15.
OLMSTED, INGERSOLL, xxxvi.
Omentum, intraabdominal torsion of the, without hernia, 227.
Ophthalmia neonatorum, a pathologic anachronism, 134.

PANTZER, HUGO OTTO, xxxvi, 15, 25, 85, 97, 112, 170.
PEARSON, WILLIAM LIBBY, xxxvi.
PFAFF, ORANGE G., xxxvi, 90, 97.
Phlebitis following abdominal operations, 90.
Placenta, relation of the weight of the, to the weight of the newborn child, 309.
PORTER, MILES F., xxxvi, 272, 278.
POTTER, WILLIAM WARREN, xxxvii, 132, 313.
POUCHER, JOHN WILSON, xxxvii.
Pregnancy, fibroid operations during, 213.
Pregnancy, myofibroma complicating; hysterectomy, 306.
Pregnancy, the toxemia of, as observed by the, 41.
Pregnancy, premature interruption of, 146.
Premature interruption of pregnancy, 146.
Present treatment of puerperal sapremia and puerperal sepsis, 61.
PRICE, JOSEPH, xxxvii, 8, 22, 36, 58, 70, 94, 96, 103, 111, 131, 132, 159, 171.
Prolapsus uteri, end results in operations for, 73.
Puerperal sapremia and puerperal sepsis, present treatment of, 61.

REDER, FRANCIS, xxxvii, 114, 122.
REED, CHARLES ALFRED LEE, xxxvii.
REES, CHARLES MAYRANT, xxxviii.
Relation of the weight of the placenta to the weight of the newborn child, 309.
RICKETTS, EDWIN, xxxviii.
ROSENWASSER, MARCUS, xxxviii.
ROSS, JAMES FREDERICK WILLIAM, xxxviii, 20, 37, 70, 168, 175, 217.
RUNYAN, JOSEPH PHINEAS, xxxviii.
RUTH, CHARLES EDWARD, xxxviii.

SADLIER, JAMES EDGAR, xxxix, 169, 175, 265.
Salpingitis, the conservative medical treatment of, 247.
SCHWARZ, HENRY, xxxix.
SCOTT, N. STONE, xxxix.
SELLMAN, WILLIAM ALFRED BELT, xxxix, 104, 113, 119, 242, 258.
SIMONS, MANNING, xxxix.
SIMPSON, FRANK FARROW, xxxix.
SKEEL, ROLAND EDWARD, xxxix, 67, 166, 227, 235, 236, 259.
SMITH, CHARLES NORTH, xxxix.
SMITH, WILLIAM S., xl.
Some of the causes of painful menstruation in young unmarried women, 104.
STAMM, MARTIN, xl.
STARK, SIGMAR, xl.
Subperitoneo-pelvic fibroid complicating a four months' pregnancy, a case of; hysterectomy; enucleation of fibroid; secondary hemorrhage one week after the operation; pelvic abscess; recto-vaginal fistula; recovery, 200.
Surgery, back to an old idea, for it introduces a new principle in, 1.
Surgical technique, aseptic, consistency in, 265.
SUTCLIFFE, JOHN ASBURY, xl.
SWOPE, LORENZO W., xl.

TATE, MAGNUS ALFRED, xl, 71.

Temporary uretero-vaginal fistula after panhysterectomy for fibroid of the uterus, 208.
THOMPSON, FRANK DANIEL, xl.
Toxemia of pregnancy as observed by the gynecologist, 41.
Tuberculosis of the kidney, with report of cases, 27.
Typhoid perforations, 159.

Uterine fibromyomata, when shall we perform myomectomy and when hysterectomy in? 177.
Uterine myomata, enucleation of large extramural intraligamentary, without mutilating any pelvic organ; two cases and remarks, 190

Vagina, formation of an artificial, by intestinal transplantation, 98.
VANCE, AP MORGAN, xli, 301.
VANDER VEER, ALBERT, xli, 166, 175.
VAN HOOSEN, BERTHA, 110.

WALKER, EDWIN, xli.
WALKER, H. O., xli, 36.
WEISS, EDWARD A., xli.
WENNING, WILLIAM HENRY, xli.
WERDER, XAVIER OSWALD, xli.
WEST, JAMES NEPHEW, xli, 177, 222.
WESTMORELAND, WILLIS FOREMAN, xlii.
When shall we perform myomectomy and when hysterectomy in uterine fibromyomata? 177.
WHITBECK, JOHN F. W., xlii.

ZIEGLER, CHARLES E., xlii.
ZINKE, ERNST GUSTAV, xlii, 58, 132, 165, 200, 224.

41A
348

3 2044

005 104